ABSTRACT

TRADITIONAL vs COMPUTER BASED VOCATIONAL GUIDANCE AND COUNSELING: IMPLICATIONS FOR DISADVANTAGED YOUTH

By

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Purpose of the Study

This study investigated some of the potential benefits of the Educational Career Exploration System (ECES) to high school students from disadvantaged home environments. The students were assigned to this method of vocational guidance and counseling as they entered the ninth grade. The group was compared with a similar group of students who were being helped in their vocational choice and planning by means of a traditional counselor-counselee approach.

Procedures

The sample consisted of a total of three hundred and forty-six (346) eleventh grade students from five high schools in Genesee County, Michigan. These schools were selected on the basis of the extent of federal (ESEA Title III) support allocated to them for operation during the 1972-73 fiscal year and their location in predominantly 'disadvantaged' areas. All schools were participating in a pilot project which utilized a computer based career decision-making and planning approach. The sample for the study included one hundred and ninety four (194) students from three schools consisting predominantly of

or both within and outside of occupational familes) was analyzed by means of a univariate analysis of variance procedure also with an alpha level of .05. Student grade point average over the three year period was used as a covariate in the two types of analyses. Chi square analyses of responses on additional items were used to elucidate the above results.

Two additional multivariate analyses of variance were performed (alpha = .05) to test whether or not there were differences in student evaluations of ECES and Traditional counseling which related to individual participating schools, racial composition (black versus white) of schools, and high school program (college preparatory versus general academic versus vocational) in which they were enrolled.

Findings

Analysis of the data supports the following statements of findings:

(1) There are apparent significant differences dependent on assignment to Traditional as compared with the ECES method of counseling on frequency of changes in career choice. The significant difference was found in favor of Traditional counselees.

(2) The hypothesis of a main effect due to method of counseling on instances of movement within versus outside job families as career choices were made by students was rejected. However, the data revealed that when the frequency of usage of the method was considered, significant sex differences resulted in favor of males both considering,

and without regard to the method of counseling to which they had been assigned.

(3) No significant difference between ECES and Traditional counselees were indicated on their expressed feeling of personal involvement except when, with visits ranging in frequency of intervals up to once each six months, Traditional counselees achieved higher scores while the trend was reversed for visits 6 - 12 months apart.

(4) There were no significant differences between the two groups of counselees when (a) frequency of changes in career choice, (b) expressed preference for counseling method, and (c) feeling of flexibility toward the number of jobs within their chosen career fields which they felt would be available to them without additional specialized training.

(5) When the counseling available to them was evaluated in relation to individual schools, significant differences were indicated surrounding assistance available in post high school educational and occupational planning, and overall helpfulness.

Conclusion

Neither Traditional counseling (T.C.) nor Educational Career Exploration (ECES) appeared to be totally adequate in providing vocational quidance and counseling to 'disadvantaged' youth in the Genesee Intermediate School District.

black students and one hundred fifty-two (152) students drawn from two schools composed predominantly of white students. One hundred and eighty-eight, (ninety (90) males and ninety-eight (98) females) were drawn from participants in the ECES and one hundred fifty-eight (seventy-one (71) males and eighty-seven (87) females) were drawn from the sample of students engaged in traditional counseling. Each subject responded to a questionnaire designed to collect information related to their expressed stability of decision about careers, feeling of personal involvement in their career decision making, and attitude with respect to the method of counseling to which they were assigned.

Analysis

Six primary hypotheses were considered. These attempted to identify significant differences in responses concerning the following areas: (1) frequency of changes in career choices, (2) overall certainty with their current choice, (3) feelings of personal involvement in the decision making process, (4) flexibility in entering a variety of jobs as a result of knowledge of various related jobs available to them, (5) preference for the career guidance and counseling method to which they were exposed, and (6) instances of movement within versus outside versus both within and outside occupational families in the process of their decision making. Independent variables were method of counseling, frequency of interaction, and sex of subjects.

A multivariate analysis of variance at an alpha level of .05 was used to test five of these hypotheses. Responses related to the third hypothesis (instances of movement within as compared with outside

TRADITIONAL vs COMPUTER BASED VOCATIONAL GUIDANCE AND COUNSELING SYSTEMS: IMPLICATIONS FOR DISADVANTAGED YOUTH

By

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DEDICATION

To Betty, whose love has persisted through the last eighteen months of graduate school and hours spent on this study. This recognition must also extend to my daughter, Rona; my brothers Sims Jr., Edmond and Elliott; my parents, family and in-laws. Their patience and assistance have been indenspensable in the preparation of this study.

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LIST OF ABBREVIATIONS

C.D.I.--Career Development Inventory

D.M.S.--Decision Making Skills

E.C.E.S.--Educational Career Exploration Systems

E.S.E.A.--Elementary and Secondary Education Act

O.V.I.S.--Ohio Vocational Inventory Scale

S.W.A.R.--Student Weekly Activity Report

T.C.--Traditional Counseling

M.D.T.--Manpower Development Training Program

W.I.N.--Work Insentive Program

C.E.P.--Consentrated Employment Program

I.B.M.--International Business Machines

CHAPTER I

STATEMENT OF THE PROBLEM

Introduction

One would rarely embark upon a long journey or even a brief vacation without some definite planning and preparation for the trip. If the agenda includes a vacation trip by automobile beyond the immediate community, road maps or an atlas of state highways and secondary roads would be consulted. With the complexity of the new interstate highway systems, it is equally important for business and pleasure to gather the most recent information concerning construction in progress. Overnight stops require a knowledge of suitable motel and hotel accommodations and many times, advance reservations. Even the routine task of packing the automobile to carry all of the necessities takes planning. Sometimes, a trailer must be rented or purchased.

Accordingly, it would seem that if one devotes so much time, thought, and planning to details of a small trip--what greater preparation and evaluation should precede a "vocational trip" which starts in youth and terminates with retirement! When one considers that a vocation is important to the extent that it lends significance and meaning to an individual's life, it is obvious that emphasis should be placed upon the cruciality of education, focused planning, and preparation for their future.

Each year the problem of providing adequate planned guidance and counseling for students becomes more complex. The number and variety of jobs has increased dramatically. The volume of information and number of qualified personnel available to help students plan and prepare for careers has increased steadily. Traditional counseling procedures lag behind in their standards as a profession, e.g., concensus on the role of the counselor has as yet not been adequately established. Conflicts in the values of disadvantaged students and many counselors remain a persistent barrier to vocational counseling and preparation. We cannot quiet the impression that most guidance counselors have limited scope to determine their objectives, working methods, and accountability. Recent efforts have attempted to bridge the gap between counseling goals and results by means of programmed vocational guidance systems.

Need for the Study

Counseling--some general problems. If one were to observe what goes on in the typical school counseling program, he might seriously question whether there has been any significant change in practice over the last 10, 20, or 30 years. Though in some programs the quality of counselor preparation has been raised and some professional counselors are increasingly being permitted to function as such, there are many problems and issues which have not yet been resolved. For example, the gap between the perception of the counselor's role by the professional associations, counselor educators, and professionally educated counselors on the one hand, and that of

administrators, teachers, students, and parents, on the other hand is great in many instances.

Many counselors still function as nonprofessionals, engaged in many quasi-administrative and routine activities such as testing, record keeping, performing disciplinary functions, etc. Many express the dissatisfaction that they have little contact with students, and lack a consensus with administrators concerning their role.[1]

Deriving from their different concerns as professionals, the counselor is concerned with the individual, whereas the administrator is concerned with students as a group and with community demand. Many parents see the main function of the counselor as getting students admitted to the college of their (the parent's) choice; as helpful in course scheduling or programming, and in giving educational and vocational information and advice.[2] They expect counselors to be "stern taskmasters to failing students."[3] For teachers, the counselor is someone who can take problem children off their hands, or who is simply another (favored) teacher they expect to teach classes. They view his competence as being limited to educational-vocational matters, and see him as dispenser of

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[1] L. D. Schmidt, "Concepts of the Role of Secondary School Counselors", Personnel and Guidance Journal, Vol. 40, (1962), pp. 600-605.

[2] H. G. Bergstein and C. W. Grant, "How Parents Perceive the Counselor's Role", Personnel and Guidance Journal, Vol. 39, (1961), pp. 668-703; W. Evraiff, "Perceptions of the Counselor", School Counselor, Vol. 8, (1961), pp. 78-82.

[3] R. S. Dunlop, "Professional Educators, Parents, and Students Assess the Counselor's Role", Personnel and Guidance Journal, Vol. 43, (1965), pp. 1024-1028.

information and advice.[4] If their training has been similar, it is only natural that teachers view the counselor as no more effective than themselves in dealing with student problems. The results of several investigations seem to indicate that students themselves tend to list their counselor as their first choice for assistance in educational and vocational planning, but do not perceive the counselor as being able to give acceptable help in the personal emotional area.[5] In some situations, even the teacher is preferred to the counselor as the person to whom a student with a problem would go.[6]

While there is evidence that where more counselors are available, more students utilize their services, responses to the question: "What led you to consider the occupation you have chosen?" raises a question about the nature of students' contacts with counselors. In one study over 80 percent referred to their own thinking or reading, and only 23 percent mentioned school. Only about one-fourth of the latter indicated that they had learned about the requirements for the occupation from counselors or teachers. Such responses were unrelated to the number of counselors in the school. The authors concluded that much of the students' vocational knowledge is acquired outside the counselor's office.[7] A study by

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[4]Bergstein and Grant, Op. Cit., p. 1028.

[5]C. W. Grant, "How Students Perceive the Counselor's Role", Personnel and Guidance Journal, Vol. 32, (1954), pp. 386-388.

[6]Allerton House Conference on Education, "Counseling Services in the Secondary Schools of Illinois", (Urbana, Illinois, College of Education, University of Illinois, 1959).

[7]R. E. Jensen, "Student Feeling About Counseling Help", Personnel and Guidance Journal, Vol. 33, (1955), pp. 498-503.

Betz, Engle, and Mallinson indicated that non-college bound students found counselors to be of little help in the educational-vocational area.[8] Although the results of individual studies vary somewhat, the researchers seem to agree in indicating that the counselor is often not perceived as a source of help to which students usually turn with problems which they face; even when these problems are educational or vocational in nature. Thus, it seems apparent that students perceive the counselor as an administrator, disciplinarian, activity director, part-time librarian, as anything or everything but a counselor.[9]

The perception of the counselor as a disciplinarian, and his identification with the administration are perhaps among the reasons why students hesitate to discuss some personal problems with him. Practice on the part of teachers of emphasizing these kinds of referrals creates a problem in student counselor relationships.

Further, the problem of involuntary counseling can only occur related to conceptions of the counselor. Counseling can only occur with the cooperation and desire of the client. Students who are referred may accept counseling and continue voluntarily. But if all or most of the students a counselor sees are referred, he may be thought of as providing services only to those who are referred by someone else. Students may then hesitate to request counseling

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[8] R. L. Betz, K. B. Engle, and G. G. Malinson, "Perceptions of Non-College-Bound, Vocationally Oriented High School Graduates", Personnel and Guidance Journal, Vol. 47, (1969), pp. 988-994.

[9] R. L. Gibson, "Pupil Opinions of High School Guidance Programs", Personnel and Guidance Journal, Vol. 40, (1962), pp. 453-457.

voluntarily. Schools with simultaneous counselor-teacher roles may in effect be depriving students of counseling services regardless of how counselors may perceive themselves, or even attempt to function in another role.

Another aspect of student perceptions of the counselor's role is the image of the counselor represented in fiction and other popular writings. This image is usually depicted as a representative or agent of the society rather than as one who is committed to helping the individual. In Hersey's novel, the counselor is referred to as the "G-Man" (G for guidance) and is described as one who knows how to manage people be getting the goods on them, "by snooping, and dragging confessions out of them".[10] The novel further depicts the counselor as a Peeping Tom, inquiring into the personal lives of children.[11] Friedenberg notes that students cannot accept help from counselors whose "basic" interest will be on the kind of problem the student creates for the school and for other people.[12] Traditional counseling may, in some schools, be seen as a "rat fink operation".[13]

The ambivalence of adolescents regarding dependence-independence may also be related to the apparent rejection of counseling by

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[10]J. Hersey, The Child Buyer, (New York: Knopf, 1960), p. 28.

[11]Ibid.

[12]E. Z. Friedenberg, The Vanishing Adolescent, (New York: Dell, 1962), p. 37.

[13]F. McNeil, "Is Counseling a Rat Fink Operation?", Psychology in the Schools, Vol. 2, No. 1, (1965), pp. 24-31.

adolescents. This period in life for youth in our society, is one in which he faces many demands, some of which may be conflicting. He must make many decisions which will affect the future. He is expected to become increasingly independent of his family; yet he is not allowed complete independence. The problem of further education and vocational choice becomes paramount.

It might be expected that the demands for help with their problems would be great, yet experience indicates that adolescents infrequently request such help. Wiley and Strong lament that:

> . . . pupils do not come voluntarily and do not willingly discuss problems of real concern to them. The counseling which has been done by the average counselor has often been undertaken under pressure, and the 'permissive' atmosphere imperative to effective counseling has been disregarded.[14]

It should not be assumed, that adolescent students do not need counseling, or even that they do not want counseling, because they do not request it or clamor for it. Holman, in her study of twenty New York junior high school students, summarized that fear of revealing themselves to others, bringing out something about themselves which they did not want others to know, fear in the relationship with the helping person, and fear of loss of independence have obvious relevance to the counselor's functioning.[15] Also adolescents do not want to seek assistance if it endangers their status with their peers--if it suggests that they are different and have problems which

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[14]R. D. Wiley and W. M. Strong, Group Procedures in Guidance, (New York: Harper and Row, 1957), p. 29.

[15]Mirian Holman, "Adolescent Attitudes Toward Seeking Help with Personal Problems", Smith College Student Social Work, Vol. 25, No. 3, (1955), pp. 1-31.

they cannot solve themselves, are weak or dependent. In addition, many adolescents do not talk to adults easily. It is difficult for them to reveal their ambitions, feelings of guilt, and conscious awareness of the nature of many of the conflicts with which they are struggling.[16] Sometimes their feelings may be distorted, either intentionally or without awareness on their part. Roeber writes of this unpredictability that:

> While vacillating with respect to independent-dependent behavior, the adolescent may also fluctuate between secretiveness and extreme verbosity. If he can accept the counselor and can feel that the counselor understands him, the adolescent may become highly verbal. On the other hand, however permissive the counselor may be, the adolescent may be so afraid to talk, i.e., to make an error, to say too much or to hurt someone's feelings that he talks very little.[17]

Considerable research has been undertaken which points to the fact that many who enter the helping professions (of which school counseling is an example) are themselves suffering from emotional difficulties. Often they succeed in overcoming these difficulties and are later able to help others. But many carry their unresolved problems with them into their work to the disadvantage of all who come in contact with them. While efforts have been made to devise screening mechanisms to identify psychologically disturbed persons,

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[16]Irene M. Josselyn, The Adolescent and His World, (New York: Family Service Association of America, 1952), pp. 48-52.

[17]E. C. Roeber, "Vocational Counseling for Adolescents", (Beterans Administration Department of Veterans Benefits, Information Bulletin, Vocational Rehabilitation and Education, August 9, 1959), 1B 7-135.

before they enter training, in the absence of overt pathology these efforts have not generally succeeded.[18]

The Inadequacy of Vocational Counseling

Recent studies indicate that the current programs for providing vocational guidance to secondary school students are not nearly as effective as the demands of the present complex society. For example, employers complain that young adults are inadequately trained by the public schools, that they leave the school system without any appreciation of the dignity of work, often with insufficient skills to meet the requirements of today's technological society.[19] A United States Department of Labor study shows that the typical member of the labor force without a college education will hold on the average of eight to twelve different jobs during his forty years in the job market, and that still, currently only one high school student in four is touched by vocational education.[20]

In a national survey, Coleman and his associates found that when a group of 12th grade students were asked to indicate the type of job they expected to have when they finished their education, more than half of those responding indicated they expected to occupy

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[18]E. Ginzberg, Career Guidance: Who Needs It; Who Provides It; Who Can Improve It, (New York: McGraw-Hill Book Company, 1971), p. 46.

[19]R. M. Worthingham, "Career Education for All American Youth", Agricultural Education, Vol. 44, No. 9, (1972), p. 220.

[20]U. S. Manpower in the 1970's: Opportunity and Challenge, Department of Labor, (Washington, D. C.: Government Printing Office, 1970).

professional or managerial positions.[21] Similarly, in a study of the vocational maturity of ninth grade boys, Super and Overstreet found that more than half of them planned to enter occupations that appeared inappropriate in terms of intellectual and educational requirements.[22] Further evidence of the instability of the career planning of high school students is provided by Flanagan's survey and follow-up studies through Project Talent, a project aimed at assessing the abilities and potential of American Youth. Here when the career plans of tenth grade boys, after they had been out of high school for one year, were compared with those of the same boys three years later, only 19 percent were still planning the same occupation. When 12th grade boys who indicated their plans in the spring before graduation were subsequently queried about their plans a year after graduation, only 31 percent indicated the same occupational plans. Only 29 percent of the girls indicating a particular career plan in the tenth grade held the same plans three years later.[23] Asked the main thing they believed they needed which was not provided by their school, talent graduates after one and five years out of high school indicated guidance and counseling as their most important unfulfilled need.[24]

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[21]J. Coleman, et. al., "Equality of Education Opportunity", (Washington, D. C.: United States Office of Education, 1966).

[22]D. E. Super and P. L. Overstreet, "The Vocational Maturity of Ninth Grade Boys", (New York: Teachers College Bureau of Publications, 1960).

[23]J. C. Flanagan, "One Year Follow-Up Studies: Project Talent", (University of Pittsburg, 1966).

[24]Ibid., p. 46.

Venn illustrated the inadequacy of guidance activities when he noted that states receiving federal funds for their programs spent less than one percent of that money on occupational guidance and counseling.[25] The problem, he feels, begins in college-oriented high school guidance departments, which too often are staffed by people who have neither the knowledge to help students select an occupation nor the inclination to direct them toward the appropriate vocational or technical education opportunities. Once the student does arrive in a vocational or technical program (although no other segment of education has recognized the importance of vocational guidance to the extent that these schools have) lack of funds, reliable testing materials, and appropriately trained vocational guidance counselors limit what the vocational and technical program is able to do.

Many critics advocating evaluation and revision of counselor education recommended numerous changes. These include elimination of college and middle-class bias, reduction of excessive student-counselor ratios, and improved occupational information.[26-30]

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[25]G. Venn, "Man, Education and Work", (Washington: American Council on Education, 1964), pp. 36-37.

[26]R. Barry and B. Wolf, "An Epitaph of Vocational Guidance: Myths, Actualities and Implications", (New York: Teachers College, Columbia University), 1962.

[27]R. E. Campbell (ed.), "Guidance in Vocational Education", A report of a National Interdisciplinary Seminar--Leadership Series #2, (Columbus, Ohio--Center for Vocational and Technical Education, Ohio State University, 1966).

[28]W. P. McDougall and H. M. Reitan, "The Elementary School Counselor as Perceived by Elementary School Principals", Personnel and Guidance Journal, (1963), Vol. 42, pp. 348-354.

Kaufman and his associates, in their study of vocational education programs have concluded that:

> . . . It was consistantly found (except in the separate vocational technical schools) that most of the guidance people were college-oriented and that they depended on the student to take the initiative in seeking information in order to make a vocational choice. In fact, very few counselors interviewed had any education or experience in vocational counseling techniques . . . It is apparent that there has to be developed a program of training for counselors, especially at the junior high school level, which will expose them to vocational offerings within the school system in a way that will give them a full understanding of the role of vocational education.[31]

The studies indicate that the problem of providing satisfactory vocational guidance to elementary and secondary students is critical. C. Gilber Wrenn, writing for the Commission on Guidance in American schools recommended that:

> . . . vocational choice be seen as a process extending over years and not as an event, that the student be helped to make a series of choices as he becomes increasingly realistic about himself and the occupational world.[32]

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[29]Venn, Op. Cit., pp. 36-37.

[30]C. Wilson, "Social Satisfaction and Academic Achievement", Education in Depressed Areas, A. H. Passow, ed., (New York: Teachers College Press, Columbia University, 1963).

[31]J. J. Kaufman, et. al., "The Role of the Secondary School in the Preparation of Youth for Employment", (Pennsylvania Institute for Research on Human Resources, Pennsylvania State University, 1967).

[32]G. Wrenn, "The Counselor in A Changing World", American Personnel and Guidance Association, (1962).

The urgency of the need for more adequate vocational guidance was obvious to many. A research and development program authorized by the Vocational Education Act of 1963 was set up in 1964. Proposals for financial support indicated strong interest in developing complete systems of vocational guidance based on the full use of modern technology resources. By 1969, at least ten such programs including the ECES were under development across the country.[33]

Special Problems of the "Disadvantaged"

A long series of studies have attempted to determine the effects of teachers' and counselors' value, beliefs, attitudes, and expectations of school authorities on a pupil's academic performance, because this may in fact, have a strong influence on actual performance of that pupil. These authors have sought to validate a type of self-fulfilling prophecy or "Pygmalian effect" on the part of teachers who eventually see in the child the performance which they expect.[34-38]

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[33]Alice Y. Scates, "Computer-Based Vocational Guidance Systems", (Washington: Division of Comprehensive and Vocational Research, Bureau of Research, U. S. Office of Education), pp. vii-viii.

[34]H. S. Becker, "Social Class Variation in Teacher-Pupil Relationships", Journal of Educational Sociology, (1952), Vol. 25, pp. 451-465.

[35]K. B. Clark, "Educational Stimulation of Racially Disadvantaged Children", in Education in Depressed Areas, A. H. Passow, (ed.), (New York: Columbia University Press, 1963).

[36]Harlem Youth Opportunities Unlimited, Youth in the Ghetto, (New York: HARYOU, 1964).

[37]W. C. Kvaraceus, "Disadvantaged Children and Youth: Program of Promise or Pretense?", (Burlingame: California Teachers Association, 1965) (mimeograph).

[38]R. Rosenthal and L. Jacobson, Pygmalian in the Classroom, (New York: Holt, Rinehart and Winston, 1968).

Rist, in a recent study of student social class and teacher expectations, summarized the problem in the following manner:

> . . . High quality teaching was not made equally accessible to all students in the class. For the students of high socio-economic background who were perceived by the teachers as possessing desirable behavioral and attitudinal characteristics, the classroom experience was one where the teachers displayed interest in them, spent a large proportion of teaching time with them, directed little control oriented behavior toward them, held them as models for the remainder of the class, and continually reinforced statements that they were special students.[39]

Rist's analysis focused largely on the early years of schooling for a single group of black children attending a "ghetto" school, but the implications are far reaching in the sense that what develops as a "caste" within the classroom appears to emerge in the larger society as a "class". The lower income children segregated as "intellectually inferior" are indeed those who in their adult years become the car and dish washers, welfare recipients, and participants in numerous other unemployed or underemployed roles within the society. Thus, teachers and counselors alike, not only mirror the configurations of the large society, but also significantly contribute to maintaining it. Probably, the clearest evidence of the significance of this problem for guidance is the

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[39]Ray C. Rist, "Student Social Class and Teacher Expectations: The Self-Fulfilling Prophecy in Ghetto Education", Harvard Educational Review, Vol. 40, No. 3, (1970), p. 447.

increasing amount of literature describing academic underachievement and school dropout rate among youth from lower socio-economic backgrounds.[40-42]

The attitude and responses of many low-income and "disadvantaged" students toward their counselors are indicative of the "chasm" which exists. Lombana found that non-disadvantaged students exhibited more positive expectations of counselors than did her "disadvantaged group".[43] Themier surveyed 30 black urban students and their parents in regard to their views of themselves and their counselors. Her findings indicated that vocational considerations were listed sixth among the seven topics usually talked about in interviews. These students expressed a desire for new programs to help them find jobs, develop a self-identity, and provide explanations of the relation of school to careers.[44] It is noteworthy that these interviews were conducted by the counselors themselves, hence the degree of dissatisfaction might well have been underexpressed by many of the participants.

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[40]S. M. Miller, "The School Dropout: An Annotated Bibliography", (Syracuse University, 1965).

[41]D. Schreiber and others, "The Holding Power of Public Schools, (Washington, D. C.: NEA Study, 1965).

[42]M. Kornrich, (ed.), Underachievement, (Srpingfield, Illinois: Thomas, 1965).

[43]J. H. Lombana, Preferences and Expectations for Counselor Characteristics Held by Disadvantaged and Non-Disadvantaged Students, (Dissertation, the Florida State University, 1970).

[44]W. C. Theimer, "Black Urban Students' Views of Themselves and Their Counselors", (paper presented at American Personnel and Guidance Annual Convention, New Orleans, Louisiana, 1970).

Rogers summarized the conditions which constitute the "quality" of a counseling relationship as:

> . . . realness, genuineness or congruence in the therapist; a sensitive, empathic understanding of the client's feeling and personal meaning, a warm, acceptant prizing of the client; and an unconditionality in this positive regard.[45]

Contrast this ideal condition with the overall plight of the "disadvantaged" youngster. Wrenn has reported informally concerning a study of "disadvantaged" high school students in Ohio. Only 10 percent of them said that they had an opportunity to talk with anyone about concerns which were personal and deeply meaningful. There were counselors in most of the schools surveyed. He concluded that:

> We are familiar with the attitude of most school personnel toward this group which says, 'Now, there's something . . . let's have the counselor work on him!' And of course, that is just the trouble. Everyone has worked on him. If the counselor isn't different from the other adults in the student's life, the result will be just what the results have been when other adults worked on him. He has been worked on until he is thoroughly calloused in all of the vulnerable spots!
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> . . . Counseling in a meaningful way concerning things which really matter takes time. Counselors can be too efficient, too busy, too ready with answers. This is not what the troubled and uncertain student is seeking.[46]

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[45] C. Rogers, "The Interpersonal Relationship: The Core of Guidance", Harvard Educational Review, Vol. 32, (1962), pp. 416-429.

[46] G. C. Wrenn, "The Dropout and the School Counselor", in Profile of the School Dropout, D. Schreiber, (ed.), (New York: Random House, 1967).

Above all else, a plea must be made for the counselor's having a non-evaluative relationship with the student. The student is often confused by the seemingly opposed roles of counselor and manager-evaluator. The counselor is often too sensitive to the unspoken, and may judge on goodness and badness with this group of students.

Wrenn uses the case of Joe to illustrate how one student reacts to what he refers to as one of these "negotiation phases".

> Joe comes in for an appointment and it is apparent that he wants to talk about the courses he is to take next semester. He raises a question--a good one. The counselor gives him plenty of time, listens well. Then he comes back with a thoughtful answer and asks for Joe's reaction. The discussion flows along fairly easily. The appointment time is about up and Joe moves toward the door. The counselor waits . . . because the chances are good that Joe may turn around and say, 'Oh yes . . . I kinda wanted to talk to you about . . .' He's been testing the counselor out, seeing whether he can listen without telling him everything, without advising him, seeing if he has time for him. Perhaps there's some self-testing here too, for Joe had to stall for time to get up the courage to bring out his real concerns.[47]

Indeed, such a student, typical of this group, often chooses not to visit a counselor even in non-threatening circumstances. The average middle-class oriented American, and this includes most counselors, still believe that work is virtuous and an occupation, is a channel to self-realization and a sense of personal signficance. Few counselors can understand even little of how the world must appear to a slow learner, a boy or girl who has lacked academic approval for

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[47] Ibid., p. 108.

years, and often parental approval as well. This is a boy or girl who knows that he does not have the same learning tools that other students have . . . and often, a boy or girl who has little faith in himself. To restore a little of the dignity of life is the task here. To leave room for a little independence in decision, for an un-supervised and un-evaluated chance at self-appraisal with what one has already achieved, as well as hopes to achieve is essential here.

Earlier products of similar ghetto-like confinement in our central cities have complained more and more that they were short-changed starting in the schools. This plight becomes obvious when one looks at the income and employment statistics as compared to those for members of the "majority" group. We note, for example, that in 1970 median family incomes of "Negro and other races" was about $6,250. The ratio of "Negro and other races" to white median family income was then 64 percent. In 1960, about 9 percent of all families of "Negro and other races" had incomes whose purchasing power exceeded $10,000 in 1969 prices. As the 1970's began, 24 percent of families in this grouping have such incomes. By comparison, the increases for whites rose from 27 percent in 1960 to 41 percent in 1966, and 49 percent in 1969.

While blacks were nearly 11 percent of the population in 1969, they comprised about 30 percent of all persons below what is sometimes called the poverty level. Of all low income family heads, 27 percent were black; and 40 percent of all children in low income families were Negro. There were substantial gains in the number of "Negro and other races" employed in sales, craft and managerial occupations. Yet, about two-fifths of men in this same group remained in private

households, labor and farm occupations a much greater proportion than for whites in these job categories. Reports from large companies indicate that the proportion of blacks in the highest jobs is far below their proportion in the total labor force.[48]

In projecting the United States Manpower in the 70's, a recent United States Department of Labor document noted that as compared with whites, blacks entered the 70's with a larger but still lagging share in the American economy. There is still some 30 percent of blacks leaving school without graduating as compared with a comparatively negligible proportion of whites. Similarly, the unemployment gap between whites and blacks who leave high school each year has not closed. In 1960, the black unemployment rate for school dropouts was about twice the unemployment rate, and in 1968 this rate continued to be about double. The ratio of black to white earnings has somewhat improved for blacks with high school and elementary school education, but the current trend means these blacks could still lag considerbly behind whites in 1980.[49]

Any program preparing youth, and particulary "disadvantaged" youth for the world of work has to develop an effective way of managing the transition from the training program into the work economy. A critical element in this transition, the expectations of each of the parties as to the demands and benefits of a job, is of

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[48]L. H. Lonh, "The World Almanac and Book of Facts", 1972 edition, (New York: Newspaper Enterprise Association, Inc.), p. 451.

[49]Handbook of Labor Statistics, 1971, (Washington, D. C.: United States Government Printing Office, U. S. Department of Labor, 1971), p. 57.

legitimate exploration here and was the focus of a study of Neighborhood Youth Corps enrollees in New York City.[50]

The authors of the study concluded that work orientation for this group of youngsters ought to be de-emphasized and that the provision of work credentials, access routes to work, and a realistic view of the working world should be emphasized. They stressed that these programs need to be individualized. They categorized four different types of youth who particularly needs special services. These include:

1. Youth who have no employment goals within the 'legitimate' economy. Helping them establish a 'personal life order' requires intensive guidance.

2. Youth with unrealistically high occupational aspirations. They need help in obtaining necessary credentials for the work they wish to undertake and access to such work. In-depth evaluation of personal abilities, work, and educational history is needed to assist this group.

3. Youth without the endurance needed for the stresses of the market place. These individuals, should be moved toward a sheltered work program where they can perform at their level of proficiency and make their maximum contribution.

4. Youth lost in the market place for lack of information. They require special counseling about jobs that are available in relation to specific employment goals they have set.[51]

Summary

The task of the counselor is one with its own inherent difficulties. It becomes even more complicated since the role of the

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[50] _____, "Disadvantaged Youth Approaching the World of Work", (New York: Neighborhood Youth Corps, 1970) (mimeographed).

[51] U. S. Department of Labor, Op. Cit., p. 18.

counselor has yet to be adequately defined and accepted by all who must of necessity depend upon the benefit from the purpose for which they form a part of the school personnel system. The problem is even further compounded by the less than optimal preparation of such counselors in such important areas as vocational counseling; as well as the less than optimal counselor-counselee ratios.

Partially reflecting the effect of the vocational guidance and counseling provided on the high school level is employer complaints concerning the unsuitability of youngsters for the world of work--both in training and in attitude. Students themselves tend to express unsuitable vocational choices and complain of their vocational counseling as a largely unfulfilled need.

Traditional counseling methods do not appear to be the most congenial to the value orientation, behavior style, or expectation of many "disadvantaged" youth. Much such students do not survive the "negotiation phase" of occupational or other counseling, or are classified as "unsuitable for counseling". Middle class counselor values toward, and expectations of, the "disadvantaged" constitute serious impositions on, and barriers to, effective counseling and vocational decision making of this group. The problem is partially reflected by the almost tragic nature of the continous trend of their substandard employment. The Coleman Report and numerous other writings stress the importance of the individual student being able to feel that he has some control over his own destiny.[52] This feeling

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[52]Coleman, et. al., "Equality of Educational Opportunity", (Washington, D. C.: U. S. Office of Education, 1966).

can hardly be engendered in a position that symbolized society's rejection of the child's social class or race and the continuation of a phenomena of failure by its members.

At the same time, obtaining sufficient counseling staff trained to cope with both the quantity and quality of modern needs is a dilemma of critical proportions. Unless the counselee feels that the counselor has a liking, interest, respect, willingness to accept, and a desire to help him, rapport will not be established--and without it no significant change in the counselee's behavior is likely to occur. The urgency of all these difficulties has led many persons concerned with vocational guidance to explore the application of computer technology to the counseling field. As a result, a number of projects employing the use of computers have been developed with the supposed aim of helping the student learn more about himself, improve his ability to make wise decisions, and to accept responsibility for his own career choices. Such systems appear to hold considerable promise toward assisting youth of "disadvantaged" backgrounds as they attempt to make suitable vocational choices and related plans for their future.

Statement of the Problem

This latter endeavor is still in its infancy however, and as yet is in need of extensive research and evaluation to determine its benefits. It is hoped that the present study will contribute to those evaluative efforts already being made, as well as will be of some heuristic value which could eventually reflect in further improvement of these new efforts to provide adequate, and available assistance

and information, while at the same time decreasing the degree of inaccuracy which may result from student-counselor interaction.

The purpose of this research is thus to examine whether Education Career Exploration Systems are more effective in providing vocational and career information and in helping high school students assess their personal qualifications than is the traditional counselor-counselee relationship used for the same purpose.

Specifically, this study is designed to determine the extent to which eleventh graders from disadvantaged home environments who have used the Educational Career Exploration System since the ninth grade will make career choices which are of interest, yet which are realistic. The group is compared with eleventh graders who utilized traditional counselor-counselee relationships in making similar decisions and plans during the same period.

Significant Questions

A step toward improving the vocational decision making capacities of high school students may be found in an examination of different methods of providing information which is necessary to the making of suitable vocational choices. In this regard, the following questions form the basis of this study:

1. Are computer based guidance systems an effective means of providing the kinds of occupational information (job descriptions, working conditions, salaries, etc.) as well as indicating other personal qualities (aptitudes, abilities, attitudes, interpersonal skills, etc.) necessary for high school students to make appropriate vocational choices?

2. Will students hold different attitudes toward a "dehumanized" form of guidance and counseling in securing information related to choosing a vocation and planning for its pursuit?

General Statement of Hypotheses

The hypotheses formulated for this study were derived from the preceding questions and were generally stated as follows:

1. There will be no difference in expressed satisfaction concerning career or vocational choices between "disadvantaged" students who have used the Educational Career Exploration System as compared with those who have utilized traditional counseling.
2. There will be no difference in the expressions concerning their feelings of personal involvement as they made their career decisions and related plans between "disadvantaged" students who used the Educational Career Exploration System as compared with students who made such decisions with the help of traditional counseling procedures.
3. There will be no difference in the expressed certainty concerning their career choices made between "disadvantaged" students who utilized the Educational Career Exploration System as compared with those who were involved in traditional methods of counseling.

Different responses as indicated by sex of the subject is then noted, while quality of academic performance is used as a covariate.

Variation associated with frequency of visits and kind of counseling is also analyzed.

Limitations of the Study

Certain limitations of this study are acknowledged. They must therefore be considered in facilitating a correct interpretation of the findings. They include the following:

1. The sample of this study is limited to high school students in the Genessee Intermediate School District. Thus, the results of this study will be generalizable to other populations only to the extent that these other populations are similar in characteristics to the populations used in the experiment, and only in relation to the specific questions considered.
2. The concept of "effectiveness" may be operationally defined in many ways. The present study is limited by the operational definition of "effectiveness" employed by the investigation as these are expressed in the dependent variables, i.e., change in career choice, overall certainty, changes within occupations, student feeling of involvement in the making of the choice, preference for one kind of counseling as compared with another, and degree of certainty and flexibility concerning job choice.
3. The effect of the present program of computer assisted guidance and counseling (ECES) being investigated is as yet in its infancy, and is thus still being evaluated

and revised. The Flint "project" represents a second major attempt at its field application. The results of the present study must therefore be considered to indicate effects of an as yet imperfect effort.

4. Grade point averages for individual students could be obtained only from counselors of three of the five participating schools. In an effort to maintain uniformity across all subjects, it was decided to use as the covariate the student's personal response as to grade point average. (It should be noted, however, that in instances where grade point average was verified by counselors, little discrepancy appeared to exist between information obtained from the counselor as compared with that indicated by the student.
5. The multivariate procedure used to analyze the data required a complete factorial model. Some subjects did not respond to all the items in the questionnaire. Analyses were therefore frequently performed only on a partial number of the total responses, a factor which may in some instances have had a limiting effect on the strength of the result of a test of an individual hypothesis.

Definition of Terms

Specific terms used in the study were defined as follows:

ECES. Educational Career Exploration System. An experimental educational career information program designed by IBM for the Genessee

Intermediate School District as an integral part of a comprehensive career development project (see Appendix A for complete description and procedure employed).

Traditional guidance and counseling. Refers to the customarily used manner of counselor-student interaction as carried out on the high school level for the purpose of personal adjustment counseling usually stemming from school related academic and social behavior problems; curriculum planning, and vocational counseling.

Increased options. Knowledge of jobs which may be considered within the broad framework of a particular group; particularly as derived by the requirements of these jobs--their similarities and differences to each other.

"Disadvantaged" students. Refers to students, primarily black who can be classified as coming from families with an income of less than $6,000 annually for parents with two children. (Minimum income is raised an additional $50.00 with the addition of each child.)

Occupational families. Groups of related jobs which require the same basic knowledges and skills, and for which an individual may be qualified with a minimum, if any, additional preparation once he has been prepared for one.

Guidance. Includes the functions toward helping individuals make optimum use of their alternatives in acquiring an education and in pursuing a career, such as providing information and assisting in its interpretation, testing, and appraisal.

Counseling. Denotes a professional relationship between a counselor and a student which is designed to help the student understand and clarify his view of his life space so that he may make meaningful and informed choices consonant with his essential nature and particular circumstances in those areas where choices are available to him.

Overview

The document is divided into five chapters. A frame of reference for the study is established in Chapter I. Included are the introduction, need for the study, significant questions, purpose of the study and its limitations, as well as definition of specific terms used. The need for the study is considered by general problems related to counseling, the present inadequacy of vocational counseling and guidance, and special problems of "disadvantaged" youth.

In Chapter II, a review of selected related literature is presented. The review is divided into five sections: (1) a review of theories of vocational choice, (2) the theoretical basis of career guidance system, (3) problems of guidance and the origin of the Educational Career Exploration System, (4) research and evaluation of vocational guidance systems, and (5) research related to the Education Career Exploration System.

The design of the study and procedures followed are reported in Chapter III. Included are procedures and source of data, the research instrument, a statement of testable hypotheses, and treatment of the data.

In Chapter IV, an examination and analysis is made of the data pertinent to the relationship between method of counseling in which the students were engaged as it relates to the feeling of involvement in the decision making process, certainty and stability of choice, overall satisfaction with their current choice. Their overall evaluation of the method they utilized is also discussed.

A summary of the study, findings, discussion, conclusions, implications, and recommendations for further research are presented in Chapter V.

CHAPTER II

REVIEW OF RELATED LITERATURE

This chapter provides a review of related literature. It is divided into four main sections.

The first section briefly reviews some of the most commonly voiced theories of the manner in which vocational choices are made. The second section presents some of the theoretical considerations which are crucial to effective vocational guidance systems. The third section presents in brief some of the specific considerations used in the planning of the Educational Career Exploration System, while the remaining section contains a detailed discussion of the research related to this particular career exploration and guidance procedure in the form of evaluative studies of field trials to date.

A detailed description of the Educational Career Exploration System operative in the Genessee County School District and from which the data for this study were gathered are presented in Appendix A.

It is hoped that such a background to the study will provide a framework within which to consider the present investigation and its findings.

A Review of Theories of Vocational Choice

A large percentage of teaching, guidance, and counseling involves problems of vocational choice. Unfortunately, a logical

analysis of the major positions concerning vocational choice processes yields neither a theory firmly and inductively rooted in practice nor practice consistently and deductively derived from such a theory. In considering and evaluating vocational guidance then, whatever its format, one must remain cognizant of the variety of professional opinions concerning the manner in which career decisions are made.

The theories of Roe, the Michigan Group, Tiedman and O'Hara, Super, and Holland, are here presented. This is done in an attempt to lend some perspective especially in terms of how the various approaches to vocational choice relate to the process of decision making.

Anne Roe. Anne Roe and her associates view occupational choice as a process of "self-categorization". The individual is an "integrated, organized whole" whose classification should be based upon his goals or needs, whether conscious or unconscious. One's occupation is viewed as a primary source of need satisfaction. Roe seeks to arrange these goals or needs in a hierarchy of prepotency and makes what appears to be a somewhat arbitrary choice of Maslow's hierarchical system. Roe then selects representatives from various vocational fields and differentiates their personality characteristics and needs.[1]

Her attempts to relate vocational choice to family background (home atmosphere and parental attitudes) have met with little empirical

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[1]A. Roe, The Psychology of Occupations, (New York: John Wiley and Sons, Inc., 1966).

support. Thus, in her schema she finds that persons at Level I in her classification schema are strongly driven, absorbed in their work, superior in intelligence, and from favorable social climates. She suggests that persons who are freed for creative work through lower need gratification can produce more effectively and with infinitely greater satisfaction than those whose creativity is in spite of (or perhaps partly marshalled by), a hunt for substitute gratifications. From this she describes the physical scientist as withdrawn, compulsive, rigid, and anxious; the biologist as restricted and nonsocial; the psychologist as uninterested in intellectual controls and interested in people, and the artist as tending to think abstractly. Her studies of the differences between "experimentalists" and "theorists" demonstrate that theorists come from more professional backgrounds, liked school, and developed more adequate social contacts than the experimentalists.[2]

The Michigan Group. Segal, Galinsky, Bordin, and others, commonly called the Michigan Group, have proposed a series of dimensions traceable to infantile physiological functions to account

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[2]A. Roe, W. D. Hubbard, T. Hutchinson, and T. Bateman, "Studies of Occupational History. Part I: Job Changes and the Classification of Occupations", Journal of Counseling Psychology, (1966), Vol. 13, pp. 387-393.

for all of the gratifications that work can offer.[3-5] They propose that any occupation can be described in terms of the relative strengths of these component dimensions and their relation to a series of modifying characteristics. In all of their studies, occupational analyses are made to identify what needs might be gratified through what modes of expression. While these studies make passing mention to the effect that this expression occurs within the framework of the environmental pressures and opportunities with which the individual is confronted, Roe is critical of the inability of the Michigan school to incorporate "persons whose occupational motivation is constrained mainly by external forces, i.e., economic, cultural, geographical, etc; and persons who have little capicity to get gratification from their work."[6]

Segal suggests that analytic concepts such as identification, the development of defense mechanisms, and sublimation in conjunction with the process of role implementation can be used to understand

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[3]E. S. Bordin, B. Nachmann, and S. J. Segal, "An Articulated Framework for Vocational Development", Journal of Counseling Psychology, Vol. 10, (1963), pp. 107-108.

[4]S. J. Segal, "A Psychoanalytic Analysis of Personality Factors in Vocational Choice", Journal of Counseling Psychology, Vol. 8, (1961), pp. 202-210.

[5]M. D. Galinsky and I. Fast, "Vocational Choice As a Focus of the Identity Search", Journal of Counseling Psychology, Vol. 13, (1966), pp. 89-92.

[6]A. Roe, "Comment", Journal of Counseling Psychology, Vol. 10, (1963), p. 117.

the personality of characteristics of individuals who make a specific vocational choice.[7] He selects the vocational fields of creative writing and accounting because they represent widely divergent occupational activities and social stereotypes. He then attempts to determine analytically the personality characteristics expected, primarily employing the Rorschach test to test his hypothesis. Segal appears to have supported Roe's essential finding that some indices of the Rorschach instrument supports the concept of occupational stereotypes.

Tiedeman and O'Hara. Tiedeman and O'Hara view career development as part of a continuing process of differentiating ego identity. Just how a person's identity evolves is dependent upon his early childhood experiences with the family unit, the psychosocial crises he encounters at various developmental stages, the congruence between society's meaning system and the individual's meaning system (including his need, aptitudes and interests) and the emotional concomitants of each of these factors. These theorists have borrowed heavily from the thinking of Roe, Freud, Erikson, Super, and Ginzberg, and from the social psychologists in developing highly complex, mathematical, formulations of career development.[8]

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[7]Segal, Op. Cit., p. 209.

[8]D. V. Tiedeman, "Decision and Vocational Development: A Paradigm and Its Implications", Personnel and Guidance Journal, Vol. 40, (1961), pp. 15-21.

Their all-inclusive attempt then, views career development as a sequence of developmental life stages or events. Related to their aspect of anticipation or preoccupation (of career goals) are the subaspects (or steps) of exploration, crystallization, choice, and sacrification. During the aspect called implementation or adjustment the steps of social induction, reformation, and integration occur. Accompanying each of these developmental stages are certain personality or psychosocial crises, such as the "autonomy versus shame" crisis characteristic of the "anal" period, or the "identify versus role diffusion" crisis of early adolesence. Tiedeman and O'Hara have concentrated on the developmental crises of later life that occur in school and the world of work, since they feel there is less of a biological and more of an "integrated, or imbalanced conjunction of the emotional and the rational elements of the personality".

Much of their research has centered on the vocational decision-making processes of children, adolescents and young adults in school counseling situations. They have made extensive use of tape-recorded transcripts of counseling or standardized interview sessions, which they analyze and describe in terms of their preconceived paradigm of career development. Each case is presented in terms of the differentiation and integration model, with reference to both career choice and personality development. The vocational choice processes of each case are described, with particular emphasis upon the psychosocial crises relevant to the situation. As an example, in citing the case of Bob, a bright third-grader who

identifies with his uncle rather than with his father in his present vocational choice, Tiedeman and O'Hara state that this "transference to another adult in the environment with the same role" may lead to an easy resolution of a potential oedipal crisis.[9]

D. E. Super. Super and his associates appear to accept as valid the criticism that much of the work in the occupational area lacks an adequate theoretical framework. Super views each of the major orientations--the trait-and-factor approach, the social systems view, and the personality approach--as partially analytic systems incomplete in and of themselves. His proposal then, is for him an integrative one which stresses the interactive nature of the process of vocational development--that is, the interaction of personal and environmental variables.[10] In order to establish the lawful determinism of career patterns, Super borrows heavily from the developmental principles of Ginzberg[11] and others in order to view vocational development as an ongoing, continuous, and generally irreversable process. He characterizes the career development

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[9]D. V. Tiedeman and R. P. O'Hara, "Differentiation and Integration in Career Development", (Massachusetts: Harvard Graduate School of Education, 1962).

[10]D. E. Super, The Psychology of Careers, (New York: Harper and Row, Inc., 1957).

[11]E. Ginzberg, Occupational Choice, (New York: Columbia University Press, 1951).

process as one of compromise within which his key construct, the development and implementation of the self-concept, operates. The individual chooses occupations whose characteristics will allow him to function in a role that is consistent with his concept of himself which, in turn, is a function of his own developmental history.[12]

Holland. Holland and his associates attempt to delineate a theory of vocational choice "comprehensive enough to integrate existing knowledge and at the same time sufficiently close to observables to stimulate further research." Evident in Holland's formulations are the general influences of need theory, role theory, self theory, social learning theory, psychoanalytic theory, and sociology.

The theory assumes, in accordance with general psychological theory, that at the time a person chooses his vocation he is a product of his heredity and environment. Out of his experiences he develops a hierarchy of habitual or preferred methods for dealing with necessary social and environmental tasks, that is, his life style. This hierarchy or pattern of personal orientations directs the individual toward an occupational environment that will satisfy his particular hierarchy. That is, various classes or occupations groups furnish different kinds of gratifications or satisfactions and require different abilities, identifications, values and attitudes.

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[12]D. E. Super, R. Strishevsky, N. Matlin, and J. P. Jordan, "Career Development: Self-Concept Theory", (Princeton, New Jersey: College Entrance Examination Board, 1963).

A person's choice of an occupation is an expressive act reflecting his knowledge of the occupation in question, his insight and understanding of himself, his personality, and his abilities.[13]

In viewing one's occupation as a "way of life--an environment rather than a set of isolated work functions or skills', Holland describes both the working environment and the person in the same terms. He presents five major classes of occupational environments with the following five corresponding personal orientations--the realistic, intellectual, social, conventional, and the enterprising. While his categorizations bear a heavy trait-factor quality, his inclination to offer a clinically flavored analysis carries him beyond that approach. Holland's work also pays attention to extra-individual factors whose influence is usually recognized, though side-stepped, by most theorists. Thus, he has found that "persons in particular personality patterns achieve in some environments but not in others".[15]

His research has been, in large part, of persons functioning at higher levels, populations whose members aspire to vocations that require professional training, and who have maximal freedom to their vocational choice.

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[13]J. L. Holland, "A Theory of Vocational Choice", Journal of Counseling Psychology, Vol. 6, (1959), pp. 35-44.

[14]S. H. Osipow, J. D. Ashby, and H. Wall, "Personality Types and Vocational Choice: A Test of Holland's Theory", Personnel and Guidance Journal, Vol. 45, (1966), pp. 37-42.

[15]Holland, Op. Cit., p. 38.

It is generally from among such theoretical formulations that vocational counseling procedures, including the newly developed automated systems to aid youngsters in vocational decision making have developed. The following section discusses in greater detail some of the specific considerations necessary to such systems.

Development of Vocational Guidance Systems

Development of vocational guidance systems has been a long but steady process. This section attempts to discuss some of the considerations which concur with the theories presented and which are necessary if the proposed systems are to provide to individual the benefits for which they were developed. The section also gives the reader a framework of the needs and key focus of counseling in general which must be fulfilled if any vocational counseling process attempted is to be worthwhile. The need for (1) evaluation personal potentials, (2) learning to make wise decisions, (3) planning in personal career development, and (4) learning about opportunities for adult activities and roles at the high school level are discussed in depth.

Evaluating personal potentials. The precise definition of "personal potentials" on which an individual should evaluate himself is still not settled. The search for aptitude, personality, interest, achievement, and value dimensions bear ample witness to the lack of definitive structure in the field though there is reasonable concensus that these are relevant to occupational or career choice. Of even greater significance is the lack of knowledge about occupational requirements except for some rough categorization of careers

in terms of level of intelligence and of the interest pattern of occupational groups as shown in some of the theories earlier cited. Even here the data are based primarily on the characteristics of those presently engaged in occupations rather than on adolescent characteristics that might be predictive. Even less is known about the demographic and sociological characteristics of occupations as independent contributors to career choice.

Much of the prior research has been done within the framework of selection psychology with the implicit or explicit assumptions of providing tools for the selector to maximize some success criterion. Only relatively recently has the counseling, planning, and self-guidance theme come to the forefront.

Even with increased sophistication in test development and statistical analyses, it is difficult to demonstrate any increase in the predictability of occupational choice over merely asking the individual what his career plans are, and the stability of career plans is not overwhelming.

Katz suggests that the only way out of the dilemma is the continued effort to collect meaningful data that relates antecendent variables to later events.[16] If the probability of entry into an occupational field is actually related to race, socioeconomic background, etc. for example, these factors must be found in expectancy tables. Hopefully, such research not only produces the expectancies, but points out changes that could or should be made to change these expectancies. A recent study funded by the U. S.

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[16]M. L. C. Katz, "A Model of Guidance for Career Decision Making", Vocational Guidance Quarterly, Vol. 15, (1966), pp. 2-10.

Office of Education indicated that in 1965 only three percent of the graduate school enrollment were blacks.[17] (Even here blacks were over-represented in elementary education and under-represented in business and engineering.)

Thus, the program for evaluating personal potentials in terms of specific outcomes is an ongoing one. In terms of the relatively low order of predictability obtained to date from high school data, perhaps the greatest contribution to counseling and guidance lies in the direction of providing information to maximize the number of options still remaining to the individual. As indicated earlier, follow-up studies of coational program graduates indicate that a "large number" never enter or pursue the field in which they are vocationally trained. The occupational placement ecology and the role of the economy, chance, and fortituous factors need to find a place in the vocational model.

Equally as important as deriving and individual's description is the need to develop a descriptive occupational profile couched in the same language as the descriptions of individuals. The homogeneity/heterogeneity of occupations and post-high school outcomes badly need refinement. The appraisal of personal potentials for an occupational-vocational guidance system has real meaning primarily in terms of occupations. Shartle's criteria for occupational analysis still appear to be valid. These include:

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[17]J. S. Coleman, and others, "Equality of Educational Opportunity", U. S. Department of Health, Education and Welfare, Office of Education, (Washington, D. C.: U. S. Government Printing Office, 1966).

1. . . . Readily available, flexible, functional and occupational classification to meet the needs of the demographer, the economic statistician, the high school student, the college student, the school or college graduate who is entering the labor force, the employed person who wants to know which way is 'up', the unemployed worker who is looking for retraining, and the older worker or the disabled person whose problems may require special attention.

2. Occupational groupings which can be readily understood by counselors, and perceived realistically by counselees . . . the objective being to place counselees in independent roles so that they can make their own decisions.

3. Systems which embody information that not only is up to date, but reflects the future to a reasonable extent . . .[18]

Probably the most promising source of response to these questions are crouched in findings from Project TALENT over the next few years. Some results of this Project, begun in 1960 and sponsored by the University of Pittsburg and the American Institute of Research should be a comprehensive counseling guide indicating the patterns of aptitude and ability which are predictive of success in various careers; a better understanding of how young people choose their life work, and better understanding of the educational experiences which prepare students for their life work.[19]

Using the information presently available, Lohnes and Cooley have attempted to isolate several factors related to their thesis that a decision model appropriate for counseling can be effectively

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[18]C. L. Shartle, "Occupational Analysis, Work Characteristics, and Occupational Classification Systems", cited in Man In a World of Work, Henry Borow, (ed.), (Boston: Houghton-Mifflin Company, 1964), pp. 285-309.

[19]J. C. Flanagan, "One Year Follow-Up Studies: Project TALENT", (University of Pittsburg, 1966).

implemented by describing individuals on a relatively few orthogonal factors and using relatively few categories of occupations or careers.[20] The problem of TALENT then, is basically an empirical one of defining predictor and criterion variables, then determining expectancies associated with each profile and each criterion. For example, are machinists and mechanics the same of different? If the profiles are the same, they are the same; if not, they are different.

As the longitudinal data of TALENT emerges, careers become somewhat more fixed and can be more readily related to predictors. Of course, the enterprise is limited to the data already collected in TALENT but this does represent a wide variety of aptitude, achievement, interest, activity, and biographical data. As the Project moves into the tenth year follow-up phase, we can hopefully assume that most career decisions have been made. Occupational profiles considering intra-individual and environmental factors could be made with reasonable confidence. At least, from more realistic career studies that cover the full range, with provision for more realistic expectancy tables, a more meaningful occupational taxonomy should become available.

Learning to make wise decisions. In subject matter classes, a skill can be defined in terms of an immediate product or outcome

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[20]W. W. Cooley and P. R. Lohnes, "Project TALENT: Predicting Development of Young Adults", (Pala Alto: Project TALENT Office, American Institute for Research and University of Pittsburg, 1968).

with some degree of precision against some consensual mastery standard. But defining "wise decision" in terms of career is not only difficult, but it is probably presumptious! Katz has discussed this dilemma at great length.[21] He notes that the problem of identifying wise decisions is not a matter of insufficient predictive validity or time-lag between the choice point and the day when all the evidence on consequences of the choice is in. Yet such an approach to defining wisdom in terms of outcomes requires wisdom that resides in the counselor or system rather than in the student, but this is where the presumption comes in. Do counselors know which decisions are wise?

Katz questions, "are there not 'universally desired' outcomes that represent a cultural concensus for which the counselor may serve as a spokesman?" This may be true, at least to some degree. Presumably, we can teach students to make these decisions that lead, at least with a high probability degree and low risk, to universally desired outcomes. But identifying such universals and inducing students to learn is not really a concern of guidance and is not with the universals, but with alternatives toward which the culture tends to be more permissive.

The individual too recognizes that he must choose between competing values. The rabble of impulses must neither be suppressed nor blindly obeyed, but brought under the rule of reason and given

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[21]M. L. C. Katz, "Learning to Make Wise Decisions", cited in Computer Assisted Guidance Systems, Department of Health, Education and Welfare, Office of Education, (Washington, D. C.: Government Printing Office, 1969).

his attention. The individual must hold himself open and receptive to different values. This process involves active and systematic examination and exploration of competing values.

One way in which values can be examined is to study their sources. If a major purpose of education is to transmit the culture and an important purpose of guidance is to help the individual come to terms with the culture, the choices the student makes will indicate how he sees himself in the culture.

One way in which he can explore values is through role playing. Career decision making games allow the individual the freedom of "trying on" various roles. Computerized games may well set the person with different roles with different value systems from his own. Such games allow the individual to explore and re-examine values, not just accept them. Katz has outlined a related high school curriculum in career development which includes decision making and occupational-educational information.[22]

Such a student, having taken cognizance of his own value system, will be ready to lay his own on the line in making a decision. The important point is that decision making should be an ongoing process, subject to continual revision. In short, the counselor does not wish to play the decision making game for the individual. Counseling should help him master the strategies for rational behavior in the face of uncertainty (which may be the nearest he can get to wisdom) to ensure that situational exploration and analysis has already taken place, and that attention has been given

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[22]M. L. C. Katz, "A Model of Guidance for Career Decision Making", Vocational Guidance Quarterly, Vol. 15, (1966), pp. 2-10.

to synthesizing the results. Although in practice these two processes continue while planning goes on, the subject has reached the place in the model at which planning is pertinent and has a factual and affective basis.

Such planning is made by means of several alternatives. One way make a listing of alternative plans which appear to be open to one with the personal and situational characteristics and with the objectives of the subject in question. (Expectancy tables and follow-up studies of Project TALENT, and the Career Pattern Study have provided data useful in showing such career paths.)

A second alternative is that of exploring a given path by means of some form of appropriate "game playing" methods. The model then calls for re-examination of the list to see whether it should be expanded as indicated by such reality testing. Such expansion may be derived from dissatisfaction with anticipated outcomes, other or differently perceived possibilities; and may even call for a shift back to analyzing the situation or exploring other previously neglected educational or occupational areas.

Tiedemand and O'Hara referred to these steps as a crystallization process which preceeds choice.[23] The student can thus plan the game effectively himself.

Planning in personal career development. Although the term change and the specific categories vary somewhat, although the

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[23]T. V. Tiedeman and R. P. O'Hara, "Career Development: Choice and Adjustment", (Princeton, New Jersey: College Entrance Examination Board, 1963).

functions are performed with different tools in different ways, counseling has four basic functions and objectives which remain. Super describes these to include analysis, synthesis, planning, and execution.[24]

The analysis function focuses upon the person and the situation in which he operates and the synthesizing function upon processes described from time to time as insight, adjustment, adaptation, integration, acceptance, compromise, knowledge, or determination to plan and to do something about the plans. A planning function is largely neglected. As he wrote concerning his "Career Pattern Study", "a planning orientation to life, and particularly to occupations, is an important factor in vocational maturity and success."[25]

In developing a counseling model for use in a computer-support system, this aspect has probably necessarily been underdeveloped. Since not much is known of the kinds of planning adolescents do, and even how much of each kind, little is known of how to facilitate planning. The assumption is made, however, that attaining a given objectives is generally varied. Choices are also concerned with the steps is a plan--which steps to take, and the time to take them. Having chosen one of the alternative routes as a result of the trial process described earlier, the task is to examine the necessary steps involved and to plan the what and how of each path.

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[24]D. E. Super, "Basic Functions of Guidance and Counseling: Planning Personal Career Development", cited in "Computer Assisted Guidance Systems", U. S. Office of Health, Education, and Welfare, (Washington, D. C.: Government Printing Office, 1966), pp. 3-9.

[25]D. E. Super, "Career Patterns As A Basis for Vocational Counseling", Journal of Counseling Psychology, Vol. 1, (1954), pp. 12-20.

A third related aspect is that of possible contingencies such as needed money. One guidance function is to help foresee these, assess their probabilities, decide which contingencies to incorporate in the planning, and determining how to provide for them. The guidance system should confront the student with such possibilities and help him identify steps he may take.

How a student identifies potential resources for executing plans, and how he uses them are also an important aspect of vocational maturity.[26] A guidance and counseling system should therefore provide assistance in ascertaining the resources which are, or might be made available to a student for carrying out his plans. It should teach him how such resources may be used effectively.

Learning about opportunities for adult activities and roles while at the high school level. An important developmental task for almost any student is the crystallization of an occupational goal and a strategy for pursuing that goal.[27] During his high school years the student need not postpone serious consideration of an ultimate occupational objective. Earlier he might have been uninterested or retained a sense of virtually unlimited personal possibilities. There comes a point, however, when he is forced to make a choice that may circumscribe his potential latitude for opportunity within the circle, inevitably excluding a larger universe of opportunities.

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[26]D. E. Super and P. L. Overstreet, "The Vocational Maturity of Ninth Grade Boys", (New York: Columbia University, 1960).

[27]R. J. Havighurst, Developmental Tasks and Education, 2nd edition, (New York: David McKay Company, Inc., 1969), p. 48.

The reflective student who understands the implications of choosing what he will do after high school may well experience an identity crisis in the face of this task.

Counseling should provide assistance to adolescents in their career development struggles. Lohnes has discussed at length the practical difficulties and role perception of counselors related hereto.[28] What the students need from a guidance program is primarily access to relevant information and instruction in how to use that information in personal decision making.

One design problem of a career guidance system is found in this necessity to minimize professional personnel, to minimize professional requirements, but at the same time, there remains the necessity to maximize encouragement and assistance to students in solving their developmental tasks. Through a core of auto-instuctional experiences, students could learn rubrics and relevant generalizations of career development psychology, implications of trait profiles for career adjustment, and aspects of sociology and economics in the world of work.

The guidance system would give students an opportunity to turn to a counselor when and if a serious discontinuity occurred in the self-exploration and personal planning process. The auto-instructional curriculum would have taught the student how to

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[28]P. R. Lohnes, "Learning About Opportunities for Adult Activities and Roles at the College Level", cited in Computer-Based Vocational Guidance Systems, Department of Health, Education and Welfare, (Washington, D. C.: Government Printing Office, 1969), pp. 16-25.

analyze his discontinuity so that he would express it rather clearly, examining it in terms of his personal history, values, and needs.

The auto-instructional curriculum might prepare the student for counselor interviews in that he becomes aware of what he may expect from counseling. The sequences would clarify the idea that, after the counselor has given whatever help he can, it will still be the student's responsibility to reach his own decision and shape his own initiatives in resolving his problems.

Lohnes has proposed an elaborate hierarchical paradigm of system analysis based essentially on Gagne's theoretical hierarchy of learning sets which mediate criterion performance. Gagne's hierarchy includes in descending order--complex abilities, basal knowledges, and differential abilities.[29] Lohnes' paradigm may be represented similarly in the following manner (see Figure 1).

The main point of this paradigm is that content development takes precedence over method development in guidance system development. The presumption is that we should develop content before we develop method because content should influence method more than method influence content. That some ability preconditions require pedagogy units and some knowledge requirements require that data units should also be remembered. He then lists some ability preconditions requiring pedagogy units as:

1. Test major area by: (a) relating requirements of selected areas to personal capabilities, (b) relating activities of areas to personal interests, and (c) relating chosen areas to post baccalaureate opportunities.

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[29]R. Gagne and Paradise, "Abilities and Learning Sets in Knowledge Acquisition", Psychological Monographs, Vol. 75, (1961), p. 14.

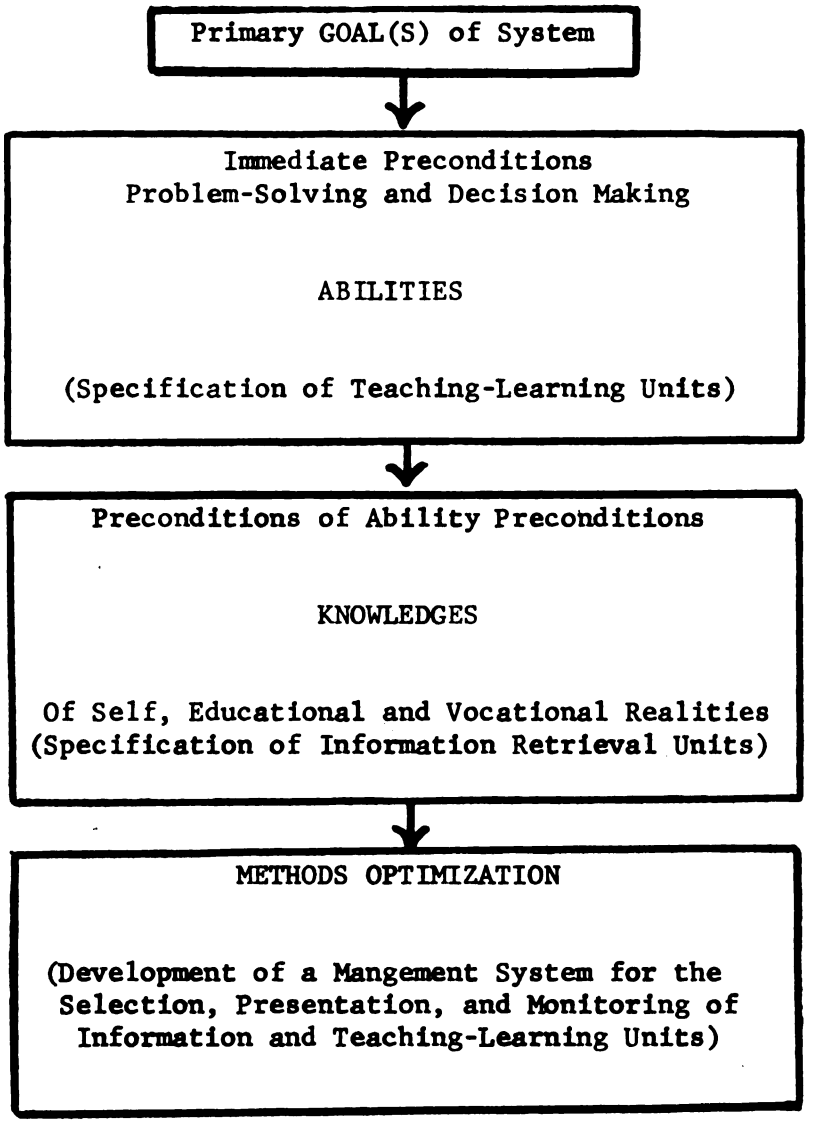

Figure 2.1

2. Test vocational aspirations by: (a) relating requirements of one or more vocational fields to personal capabilities, and (b) relating opportunities and activities of one or more fields to personal interests and motives.

3. Test self-knowledge by: (a) describing a personal value system, (b) describing personal decision system, and (c) synthesizing and evaluating several hypothetical career sequences one might pursue.

Knowledge preconditions requiring data units are:

1. Determine major areas by: (a) forming a total list, and (b) getting the relevant details on requirements, activities, and post-baccalaureate outcomes in selected areas.

2. Identify vocational fields by: (a) exploring the conceptual map of the universe of all vocational fields, and (b) getting the details on more requirements, activities and life-style factors, and long range career patterns in a few fields.

3. Explore self-concept by having individuals examine his abilities, profile, his motive (needs, values, interests, goals), and his other resources and limitations.

4. Plan strategies by considering: (a) multipotentiality as a concept, (b) a value system, and (c) the role of decision maker.[30]

To have the student make an appropriate, satisfying educational or vocational choice seems to be the most appropriate focus for a prototype system. The student's motivation to participate should be high. Granting that participation in a career guidance system is to be voluntary and is to depend on initial motivation derived from the student's sense of needs, this goal is likely to bring a strong response. Lohnes thus recommends that in order for method optimization to take place, the first precondition is that the system media allow the student to enter the process of career guidance systems when he wants. The service should be advertized but only the student can schedule his initial venture into a process that depends upon the motivational force of his acute awareness of a personal development problem. He should be assured that the treatment plan will allow for his active participation in the making and revising of a plan.

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[30]Lohnes, Op. Cit., pp. 22-25.

The second unit should provide a pretest of his decision making, his value structure, and his educational and vocational information inventory as they exist upon entry. The third unit should incorporate present results in a treatment planning exercise. The unit must also have access to selected parts of the school's cumulative file on the student. Frequent post-testing should be a feature of subsequent pedagogical units to provide inputs to a program of system monitoring.[31]

Resolving personal problems and problem situations. Campbell discusses the problem of resolving personal problem in human interaction with an educational and vocational guidance system in two parts.[32] The first involves personal problems experienced by students as they cope with the educational and vocational development process. These may be summarized as: vocational goal conflicts and anxieties--conflicts generated by the influence of parents and 'significant' others; educational performance (typically underachievement, study skills, and attitudes); confusion and conflict related to values and belief systems; the selection of the most appropriate psychological work climate or setting; dependence-independence dilemmas; a search for philosophical purpose and meaning in life' idiosyncratic goal direction; and anxieties precipated by interaction with the system

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[31] Ibid., p. 24.

[32] R. E. Campbell, "Resolving Personal Problems and Problem Situations", cited in "Computer Assisted Guidance Systems", Department of Health, Education and Welfare, Office of Education, (Washington, D. C.: Government Printing Office, 1969), pp. 40-45.

data bank. Boocock, for example, points out that some girls can become anxious when they learn that others are planning multiple careers and they are not.[33]

The second major area involves what will be terms "humanistic to systems technology". Fears of alienation, and de-personalization represent this class of problems.

The most obvious option for dealing with personal "handups" is for the student to see the counselor. Within the complex of the system can be introduced innovations to aid the counselor in dealing with these. Campbell suggests the inclusion of procedures for gross diagnostic scanning, diagnostic evaluation, and behavioral modification.[34]

Gross diagnostic scanning would help both the client and the counselor in identifying gross systems indicative of more severe personal problems. Specific tasks which might be identified include procedures which assist students in crystallizing their personal problems, and programs which educate students to recognize when they should seek professional help. Colby has experimented with the simulations of neurotic processes which could be applied to the vocational educational process for gross diagnostic scanning of personal conflicts.[35]

The second step serves to achieve a more thorough diagnostic evaluation of the student's problems. Here the system and counselor

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[33]S. Boocock and J. S. Coleman, "Games with Simulated Environment in Learning", Sociology of Education, Vol. 39, (1966), pp. 215-236.

[34]Campbell, Op. Cit., p. 44.

[35]K. Colby, "Computer Simulation of Change in Personal Belief Systems", Behavioral Science, Vol. 12, (1967), pp. 248-253.

as part of the system need to conduct a more in depth analysis of the nature of the problem before proceding with treatment. Computer based diagnostic projects have been attempted by Tonkins,[36] Yelon,[37] and Bellman.[38]

The third and final step to help resolve personal problems is concerned with treatment procedures, a function which must necessarily be performed by the counselor, student, parents, and other referral agencies where this is deemed necessary.

It is thus from one or another, or some combination of the theories of vocational choice that the needs of counseling presented in this section have been derived. It is within such perspective that computer counseling systems have been designed.

The following sections indicate some general guidelines which have been suggested for use in evaluating the effectiveness of such systems; and the results of evaluations of the Educational Career Exploration System in particular.

Some comments on computer assisted guidance research. Hamilton and Jung noted that a major difficulty in evaluating outcomes of individualized guidance systems has been the unavailability of adequate criteria for "what is meant by success" in individual planning,

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[36]S. S. Tonkins and S. Messick (eds.), Computer Simulation of Personality, (New York: Wiley, 1963).

[37]S. L. Yelon, "Programmed Observation Training", (Paper presented at American Educational Research Association Annual Meeting, Chicago, February, 1968) (mimeographed).

[38]R. Bellman and M. B. Friend, "Simulation of the Initial Psychiatric Interview", Behavioral Science, Vol. 11, No. 5, (September, 1966), pp. 389-399.

decision-making, and self-management processes. They attempted to tackle this problem in an evaluation of the Comprehensive Career Guidance System (a system similar to ECES) operative in the San Jose Unified School District in California.[39]

The processes involved in the model of effective problem solving, used as a guide for writing of instructional objectives and related behavioral outcomes in this system are, however, theoretical constructs, and therefore, noted Hamilton and Jung, cannot be measured directly. In lieu of direct measurements, a set of tasks (e.g., outcomes) had been designed that are judged to be valid behavioral indicators of a particular process. When such desired outcomes are designated in observable and measurable terms, and when test items are constructed which are closely related to these outcomes, student performance can be assessed to determine when instructional materials and procedures have succeeded in helping students to reach objects and goals, when they have failed, and when they need further development to increase their effectiveness.

Hamilton and Jung considered "criterion-referenced" measurement techniques particularly appropriate for evaluating the effects of a guidance system designed to aid individual goal formulation and planning, since they are concerned primarily with measuring the degree of accomplishment of specified objectives. They proposed that the process of developing test items based on a statement of objectives is considerably simplified by using the method of comprehensive rationales.

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[39] J. A. Hamilton and S. M. Jung, "Measuring the Outcomes of an Individualized Career Guidance System," (Paper presented at American Educational Research Association Annual Meeting, Chicago, April 4-7, 1972).

Such a rationale consists of first, an illustration of the specific skill or activity, frequently using critical incidents describing especially effective or ineffective performance. A second part of the rationale included an analysis of behavior described in the first part. This analysis, they claim, is particularly useful in demonstrating the importance of the behavior, permitting the avoidance of items. The third part of their rationale proposed one or more specific test items which are felt to best represent effective performance on the defined activity. This also helps to insure that the behavior to be called for in the proposed item is within the immediate repertoire of the examinees.

In line with such an argument, Hamilton and Jung collected data from a sample of ninth and tenth grade students during a field test of the Comprehensive Career Guidance System. A variety of evaluation instruments in which criterion items were tightly and strictly related to the outcomes of instruction with as high a degree of face validity as was possible were employed to assess student achievement and attitudes across a complete CCGS program. Like ECES, this program focused on helping students to acquire meaningful information and decision-processing skills in order to plan their educational and occupational futures wisely.

One notes, however, that a major assumption of this effort was that students must be able to demonstrate certain skills in personal problem solving related to goal selection and management rather than to reach conclusions about what goals and plans are best for them as judged by independent "experts". The accuracy of such an assumption is undoubtedly questionable.

Research and evaluation of vocational guidance systems. A more and more marked trend in American education is toward making educational systems responsive to the needs of individual students. The widespread practice of strating a course at the same place for all students regardless of their previous preparation is increasingly being questioned by instructional designers. The Education Career Exploration System is one example of an attempt to design, develop, and field test a guidance system especially suited to systems of individualized education.

A primary aim of ECES is to help each student plan wisely for the future by encouraging him to consider the realistic probabilities of achieving a wide variety of potential goals, to select those goals which he has a likely chance of reaching and which will probably afford him satisfying consequences, and to pursue his goals with sufficient flexibility to take advantage of new opportunities and changing circumstances.

During the past twenty years, those most concerned with the study of occupational choice, career guidance, and the evaluation of vocational guidance procedures and programs have substituted the concept of career or vocational development for that of occupational choice, and the developmental criterion of vocational maturity for static criteria such as having an occupational choice or having a realistic occupational choice. The history of this change cannot be described in detail here, but some of the major issues, the major studies, and the important findings to date need to be recapped and identified here to make clear the basis for the evaluation procedures for refinement in the first year of this project.

The developmental approach in vocational counseling seems to have had its origins in the 1930's and 1940's through both sociological and psychological studies in the United States and abroad.[40-44] Such research demonstrated that the conventional objectives and criteria of vocational guidance were invalid and irrelevant in the ninth grade. While it is true that most ninth graders can and will, when asked to do so, report an "occupational choice", changes in educational and occupational plans are frequent during the high school years and consistency of choice or of field of choice is not related to other traits of known importance in ninth graders. Furthermore, even measures of realism or wisdom of occupational choice in the ninth grade are unrelated to occupational or career success or satisfaction at age twenty-five. The findings of the Career Pattern Study.[45] have been confirmed by several independent investigations. The Career Development Study essentially confirmed

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[40]P. E. Davidson and H. D. Anderson, "Occupational Mobility in an American Community", (Palo Alto: Stanford University Press, 1937).

[41]D. C. Miller and W. H. Form, Industrial Sociology, (New York: Harper and Row, 1951).

[42]E. Ginzberg, S. W. Ginzburg, S. Axelrad, and J. L. Herma, "Occupational Choice", (New York: Columbia University Press, 1951).

[43]Super and Overstreet, Op. Cit.

[44]D. E. Super, R. S. Kowalski, and E. H. Gotkin, "Foundering and Trial After High School", (New York: Teacher's College, Columbia University, 1967) (mimeographed).

[45]Super, Op. Cit., pp. 12-20.

in eighth, tenth, and twelth grades the findings reported for the Career Pattern Study.[46] In studying occupational plans and the outcome of vocational guidance in several Wisconsin schools, Rothney confirmed the instability and virtual irrelevance of early adolescent choices,[47] as did Flanagan and others in Project TALENT.[48,49]

Appropriate objectives and criteria for ninth graders were shown, by the Career Pattern Study, to involve planfulness and time perspective (the tendency to look ahead and plan for anticipated situations), having and seeking needed information, and knowing what kinds of information are likely to be needed. These have been characterized as indices of vocational maturity, indices which show increases as adolescents go through high school and enter college and the world of work.

A number of such measures of vocational maturity have been developed, most during the past ten years. It was Crites who first developed a practical measure, the Attitude Scale of the Vocational Development Inventory.[50] He has also developed a Competence Scale to complete the Inventory. Westbrook and his associates have

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[46]W. D. Gribbons and P. R. Lohnes, "Career Development from Age Thirteen to Age Thirty-Five, (Washington, D. C.: U. S. Department of Health, Education and Welfare, Office of Education, Bureau of Research, 1969).

[47]J. W. Rothney, Guidance Practices and Results, (New York: Harper and Row, 1958).

[48]Flanagan and Cooley, Op. Cit.

[49]Cooley and Lohnes, Op. Cit.

[50]J. O. Crites, "Measurement of Vocational Maturity in Adolescence: I-Attitude Test of the Vocational Development Inventory", Psychological Monographs, Vol. 79, No. 2, (1965), p. 595.

developed an objective instrument, the Cognitive Vocational Maturity Test, which seeks to measure only the intellectual or informational, as contrasted with the affective or motivational aspects of vocational maturity.[51,52]

Vocational maturity was measured in the first Educational Career Exploration pilot project by the Career Development Inventory (CDI), an instrument developed specifically for the project.[53] Drawing upon the work of Super, Crites, Gribbons, Lohnes, and Westbrook, eleven dimensions of vocational maturity were initially identified. Items were written and scales developed to measure these dimensions.

Review of Research of the Educational Career Exploration System

A. Evaluation of the Montclair, New Jersey High School Field Trial[54]

The first evaluation of ECES came in 1970 with the completion of the first year of field trial of the system in the Montclair, New Jersey High School.

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[51]B. W. Westbrook and J. R. Clary, "The Construction and Validation of a Measure of Vocational Maturity", (Raleigh, North Carolina: Center for Occupational Education, North Carolina State University).

[52]B. W. Westbrook and J. W. Cunningham, "The Development and Application of Vocational Maturity Measures", Vocational Guidance Quarterly, Vol. 18, (1970), pp. 171-175.

[53]D. E. Super, M. J. Bohn, D. J. Forrest, J. P. Jordan, R. H. Lindeman, and A. S. Thompson, "Career Development Inventory, Form I", (New York: Teachers' College, Columbia University, 1971).

[54]A. S. Thompson, R. H. Lindeman, S. Clack, and M. J. Bohn, Jr., "The Educational and Career Exploration System: Field Trial and Evaluation in Montclair High School", (New York: Teachers' College, Columbia University, 1970), (mimeographed).

Purpose of the study. The design of this evaluation was organized around such topics as: (a) level of educational and vocational planning maturity knowledge of decision-making principles, processes and information and self concept after use of the system, (b) sequence and frequency of use of information in the system, (c) changes in counselor's activity patterns, and (d) effective use of the ECES media.

The sample and design of the study. The subjects of this study consisted of 160 control and 160 experimental subjects matched on the independent variables of grade, sex, race, and post-high school plans. Subjects were 50 percent male, 50 percent female, 64 percent white, 36 percent black, 65 percent non-collegebound. The experimental group was given access to ECES and participated in the system. Students in the control group were not given access to ECES.

Instrumentation. In the pre-test of these groups, questionnaires, interest, and aptitude tests were administered. Both groups completed a general questionnaire after the field trial. The experimental group also gave their reactions to the system on a separate post-test questionnaire and on an in-process student reaction form. Thus, the majority of the data gathered in the study were measurements on the students themselves, since the primary interest was on the effects which ECES might have on students and how they use the system.

To assess the effects from a different perspective, data were also collected from other persons involved with the ECES field study, specifically the counselors, teachers and parents.

Results. The findings of this evaluation were as follows:

1. The field trial demonstrated that the hardware could relatively easily be installed and maintained in a community high school, and the ECES procedure could be used in an ongoing school guidance program.
2. ECES was applicable and appropriate for students with a fairly wide range of age, grade and intellectual levels and of socioeconomic backgrounds. The students readily used the system and did so with a good deal of enthusiasm. ECES was used somewhat more often by male than by female students and somewhat less by twelth graders than students in lower grades, possibly because it came too late in the school year to be of much direct exploratory value for the group about ready to graduate. Black students used the system as much as did white students. The highest users were the ninth and tenth grade, non-collegebound males. The lowest users were the black, non-collegebound females. Low absenteeism rate during the extra hour at the end of each school day provided further evidence that the students were interested and involved, and that their use of the system was self-motivated rather than merely the result of the experiment.
3. The following findings were also indicated: (a) a decision-making information scale which measured how much specific knowledge the student thought he had concerning certain aspects of occupations showed a general positive increase

in favor of ECES users (except for the twelth grade and black students--See (b)), (b) few differences were found between ECES and non-ECES users on a scale which measured the amount of useful vocational and educational information the student had obtained from a variety of sources, and one which measured the student's acceptance of responsibility for decision-making. On the former scale, however, there was a steady progression from grades nine through twelve. (c) measures of realism of vocational and educational self-concept were obtained by computing discrepancy scores between various combinations of self, best-liked occupation, least-liked occupation, and ideal self. Comparison between ECES and non-ECES users and among the various subgroups based on race, future plans, sex, and grade level revealed no significant differences.

(d) although the ECES system was not designed to change students' attitudes toward sources of job satisfaction, possible effects on the work attitudes as measured by a Work Values Inventory were studied. The comparison showed that non-collegebound students considered work surroundings significantly more important than did the collegebound students. Emphasis on importance of job prestige declined from the pre-trial to the post-trial measures for the ninth, tenth, and eleventh graders in the case of the experimental subjects, suggesting a desirable change in focus, whereas the control subjects showed increases in grades nine and eleven and decreases

in grades ten and twelve. Importance of economic returns as a work value declined for collegebound students in the experimental group and for non-collegebound students in the control group. With respect to the importance of variety as a work value, there were changes from pre- to post-trial, depending upon the sex and the future plans of the subjects, with collegebound males showing no change and non-collegebound males showing no change and non-collegebound males an increase.

Student reactions. The general reaction of students to ECES was quite favorable, with a majority of the experimental subjects indicating that they liked the system and that other students shared their evaluation. Seventy-five percent or more indicated that ECES was: (1) helpful in their educational and vocational plans, (2) lived up to their expectations, (3) helped them understand their strengths and weaknesses in relation to educational goals, and (4) revealed more areas of possible educational and vocational alternatives. Of the subjects, sixty percent said they would recommend its use if there were a charge and seventy-eight percent said their parents would be willing to pay a reasonable fee to have it available for them. While there were no significant differences among students in these overall attitudes, subgroup differences were evident. Among these, one finds that:

1. Forty-four percent of the black students, and also non-collegebound students, as compared with twenty-seven percent of the white and collegebound students felt that the system had tried to choose an occupation for them.

2. Students using ECES felt that its use had facilitated their vocational and educational plans. For example, sixty-four percent said that they were more definite about their plans than before using the system, while only fifty-one of the one hundred and forty students reported such definiteness about their plans before. Results appeared most evident in the ninth grade. Use of the system seemed of particular value to the non-college-bound students in helping them understand their strength and weaknesses in relation to their occupational goals.
3. The students estimated that sessions of between forty-five and sixty minutes would be about the right time for a sitting, and said that if the system were available all year long, they would like to be scheduled at least once a week for its use, with the ninth and eleventh grade students and non-collegebound students preferring more frequent use than tenth and twelth graders and collegebound students.
4. Most students reported preference in favor of needing both the counselor and ECES rather than differentiating their functions. ECES was rated as a better source of help in understanding interests, abilities, getting useful facts about occupations, and discovering new educational possibilities. Counselors were highly preferred as the source to which to go in order to "understand your individual situation and needs better".

The study of the trends in student attitudes toward use of ECES revealed that the majority of students enjoyed working with the system,

found the material easy to read and to understand, and felt they had made progress in thinking about their future as a result of each session with ECES. Non-collegebound students reported that they received more help than was reported by collegebound students.

Parent reactions. Information about parental attitudes was received from a parent questionnaire filled out by 115 parents and anecdotal reports from interviews with a sample of non-respondents. The results revealed that parents considered ECES to be of benefit in providing information, in helping students see connections between interests and occupations, making better career decisions, and recognizing the importance of high school performance. There were no basic differences in the parents' responses connected with ethnic background or the grade level of the students. Least value was expressed by parents of white, collegebound males, who presumably already had definite occupational and educational preferences and choices. A test of differences in parents' attitudes depending on fathers' occupational level revealed some differences, with the lower level parents feeling that ECES had much to offer their children and that it added significantly to their parental involvement.

Counselor reactions. Counselors perceived students as not having a good working knowledge about occupations and as making plans without being aware of the information which is needed for wise planning. Students' plans were found to be more definite concerning subsequent training than, they were concerning occupational plans. Counselors felt that they themselves had inadequate time to provide the necessary help. All counselors felt that there should be more emphasis on career and educational guidance than was then possible.

There appeared to be no difference between the experimental and control groups on the average length of interview time or in the ratio of education to vocation focused interviews with counselors. For both groups, giving information to students was the principal interview activity and for both groups the outcome of the interview was judged to be an expansion of the alternative under consideration.

Counselors' reports generally suggested that they did perceive the three-month use of ECES as producing extensive changes in their own work patterns. The effect of the system was seen in the increased activities in other aspects of the guidance program, particularly in the use of the occupational library. The most visible outcomes were seen in the occupational and educational plans of the students, usually in the direction of more definite and more appropriate plans and goals.

Teacher reactions. Information concerning teacher estimates of the vocational and educational planning activities of the students were difficult to interpret due to the small number of observations made by any one teacher.

B. Evaluation of the Flint, Genessee County High School Field Trial[55]

After the initial trial in Montclair, New Jersey High School, ECES was revised and expanded by International Business Machine Corporation in preparation for a county-wide field trial in Genessee County (Flint), Michigan.

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[55]R. H. Lindeman, D. J. Forrest, et. al., "The Educational and Career Exploration System: First Year Report of a County Wide Field Trial and Evaluation", (Paper presented at American Educational Research Association Annual Meeting, Chicago, April 4-7, 1972).

The field test and evaluation of ECES in Genessee County was conceived as a five-year project. The primary purpose during the first year was to develop a sound program of use patterns and to develop and refine instruments. The second and third years were planned as the evaluation phase, followed by analysis and follow-up during the final years.

Purpose of the study. Based on the findings of the previous research outlined above and the trail evaluation of the Montclair High School experience, similar objectives were formulated in the evaluation of the Genessee County program at the end of its first year.

The sample and design of the study. Subjects included tenth graders of 25 public high schools paired on the basis of size, socio-economic level location, ethnic composition, number of counselors, and drop-out rate. One member of each pair was randomly designated experimental, the other control. The experimental schools had 3,201 eligible sophomores, while the controls had 2,386.

Instrumentation. The data gathered on these students included the following:

The Career Development Inventory--This inventory was administered to both experimental and control groups in December, 1970, prior to exposure of the experimental group the the system and again in May, 1971. Subscales included information concerning: (1) planning orientation, (2) resources for exploration, and (3) decision making and information.

Student Reaction Form--A questionnaire was administered immediately after use of the system to assess the immediate reactions of ECES users to system format, ease of use, clarity of presentation, and to the general worth of the system.

A Student Weekly Activities Report (SWAR)--The checklist dealt with the activities of reading about, looking into, and discussing educational and occupational topics. It was administered weekly for ten weeks to a sample of 250 control subjects who comprised the intensive study group.

A Student Questionnaire--This was administered in May, 1971 to a sample of ECES users to determine general reactions to the system and to assess its perceived effects on, and contributions to the students' educational and vocational plans.

The 114 counselors in the 25 schools constituted the other major group of subjects in the evaluation. Data from counselors included:

Survey of guidance attitudes. A 27-item multiple-choice instrument was administered to all counselors in December, 1970 and in May, 1971 to assess, before and after the experimental period, their belief in the value of the vocational counseling function in guidance.

A Counselor Reaction Questionnaire--The questionnaire was given to all counselors in the experimental schools. This was designed to assess the counselors' experience with ECES, with the administration of the program, and their interaction with ECES users in counseling situations.

At the end of the experimental period a parent questionnaire was sent to the parents of a sample of students from the experimental group to determine the effects of system usage on the interactions of parents with students in regard to educational and vocational planning activities. It also assessed parent attitudes toward the system.

Because optional use of the system at the Genessee Intermediate School District location was not possible, there was little opportunity to determine optimal usage patterns during the present study. The median number of hours of use per student was three to four hours and appeared to be a function of the scheduling of experimental students at Genessee Intermediate School District. Many of the students, for one reason or another, did not return for their second scheduled session. These data were much different from those obtained in the Montclair field trial where the mean number of hours of usage by 10th graders was 6.7. At Montclair, however, students could use the terminals as often as they wished.

Results

Concerning the use of the two major parts of the system; the data show that during their first two-hour session approximately two-thirds of the users explored occupations while one-third explored majors. In the second session nearly all users explored occupations and two-thirds also investigated majors. Apparently most students utilized both of these aspects of the system.

Student reaction. Responses to the Student Reaction Forms were overwhelmingly favorable. The great majority of students indicated highly favorable reactions to specific features of the system as well.

The physical features of the system were seen as easy to use. The system was judged to explain ideas, occupations, and majors well. The charts were considered helpful, and the system was seen as being helpful with educational and occupational planning. After the second session more students wanted a longer period at the terminals, and to use it more often, suggesting that the value of the system became more apparent after greater familiarity was achieved. Although nearly all students gave favorable responses, the non-urban students were more enthusiastic than the urban students. Females were somewhat more enthusiastic than males, indicating that they found it easier to use than did the males, and that they felt they received more help in educational and occupational planning, a finding which was contrary to that found in the Montclair evaluation.

Responses to the student questionnaire. Although only one-fourth of the questionnaires were returned, the responses of those who had was highly favorable. The students indicated that they felt more definite about plans after using the system, and that they could profit more from talks with counselors after using the system. They felt that the system was sufficiently personal, but was not making decisions for them.

No significant differences between subgroups of students were found on the Planning Orientation Scale using (1) sex and type of community; and (2) race and sex as independent variables. Significant differences were found, however, on Scales of Resources for Exploration and Decision Making and Information. These results may be summarized as follows:

1. Statistically significant differences between ECES users and non-users were found only among students from urban schools where there was a substantial number of black students enrolled. ECES users tended to show slightly greater improvement than non-users in terms of quality of potential use of occupational resources, as measured by the CDI. The difference, however, was small, being approximately one-fourth of a standard deviation.
2. Statistically significant differences between males and females were found on the Decision Making and Information Subscale. Females improved more than males on this scale during the period of the study.
3. Statistically significant differences were also found between black and white students on the Resources for Exploration, and Decision Making and Information subscales. On the former, differences were in favor of white students. On the latter, differences were in favor of black students.
4. Statistically significant differences were found on the Decision Making and Information Subscale between rural, suburban, and urban schools participating in the study. Rural schools tended to show slightly greater improvement during the period.

The Student Weekly Activities Report (SWAR) was administered to tenth graders in the three schools comprising the Intensive Study group, 1971. Many of the forms, however, showed careless markings which rendered interpretation of the data impossible.

Parent reactions. Only about one-fourth of the parents returned usable questionnaires. Most parents who returned questionnaires reported having discussed ECES with their children and estimated that, as for the Montclair subjects because of ECES they had become more involved in their children's educational and vocational planning. In general, the parents' responses were highly favorable and indicated a desire for their children's earlier introduction to the system.

Counselor reactions. One of the objectives of the study was the assessment of counselor's attitudes toward the vocational guidance aspects of the counselor's role.

The Survey of Guidance Attitudes was mailed to all 114 counselors in the county at the beginning and again at the end of the school year. Eighty-one percent of the counselors returned completed SGA's at the beginning and 68 percent at the end. Responses indicated a widely-shared positive attitude toward vocational guidance activities on both pre- and post-test with no significant shift over time. Comparisons were made among counselors from experimental versus control schools. Those who reported spending differing amounts of time in counseling, revealed no significant differences on either pre- or post-test.

Counselors' reactions to the effects of ECES on students were generally positive and supportive of the system. Exceptions were to the statements that ECES greatly reduced anxieties about occupational choice and that certain of the ECES messages proved discouraging to the student. Only about half of the counselors agreed with these statements, the other half disagreed. Although students were seen

as benefiting from ECES, the counselors were not uncritical of some specifics of the system.

Counselors' views of ECES hardware, scripts and mechanics were also generally positive, although opinions were divided on the ideal length of a student's interaction with the terminal and on the advisability of making ECES available to ninth graders.

Concerning the effects of ECES on themselves, most of the counselors agreed that ECES had caused them to do some reading they would not otherwise have done, and many stated that they had been stimulated to do some independent research on ECES users.

About half of the counselors who responded felt that they were seeking types of students they had not previously seen. It was also significant that about half thought they were working with students at a "much higher level of problem solving" following ECES use.

C. Evaluation of the Flint, Genessee County High School Field Trial 1971-1972.[56]

Having benefited from two previous trials, the plans for the second year of the Genessee County trial were made more carefully. The computer terminals with which the students used ECES were removed from a central location and placed in the schools which the student users were attending. Secondly, care was taken to insure that some students used ECES for more hours than had been the case during the previous year. The Career Development Inventory was improved and used

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[56]R. A. Myers, A. S. Thompson, R. H. Lindeman, D. E. Super, T. A. Patrick, T. W. Friel, 'Educational Career Exploration System: Report of a Two-Year Field Trial", (New York: Teachers College, Columbia University), pp. 59-67.

again, and the carefully matched and randomly designated experimental and control schools were once again employed. Finally, a demonstration project was conducted to access ECES' usefulness under the best available conditions.

Results

Vocational maturity. Most tenth graders in both the experimental and control schools were given the Career Development Inventory (CDI) at the beginning of the academic year. More than 10,000 students were tested. Near the end of the school year, after students at the experimental schools had used ECES, a post-test was attempted in both experimental and control schools. The post-test yielded 2,245 usable tests, 792 from students who had used ECES. An analysis of the findings are listed below:

1. ECES users showed larger gains than non-users both in degree of planning orientation (CDI, Scale A) and in choice and use of resources for exploration (CDI, Scale B).
2. ECES users did not differ from non-users in quality of decision making and amount of (occupational Career) information possessed (CDI, Scale C).
3. There was a significant positive relationship between the amount of time a student used ECES and the amount of pre- to post-test gain on CDI Scales A and B.
4. Although the differences described in items 1, 2, and 3 were highly significant from a statistical point of view, they were small in absolute terms.

5. A special analysis was attempted to assess possible delayed effects of using ECES during the tenth grade on selected eleventh grade students, but no apparent delay effects were observed.

Demonstration Project

Recognizing that attempting to involve nearly 120 counselors from twenty six high schools in the field trial would lead to irregularities of control and treatment conditions, a demonstration project was designed in order to provide a trial of ECES under the best available conditions. The demonstration project included three conditions: (1) group sessions involved the Decision Making Syllabus (DMS); (2) terminal time on ECES without specially structured supporting counselor activity (ECES ONLY); (3) a control condition involving neither DMS nor ECES-ONLY.

Fourteen counselors were selected for each of the three conditions and each counselor was asked to select fifteen students to comprise his group. The counselors selected for the DMS condition were especially chosen fro their interpersonal skills and enthusiasm for ECES. No such criteria were applied in selecting the counselors for the other two conditions. The ECES ONLY counselors carried no guidance services at experimental schools. The control conselors did the same at control schools.

DMS counselors conducted a specially tailored, educational program for teaching decision-making skills. The DMS program had as its goals the following:

(a) To provide counselors with a systematic program to facilitate and direct their efforts to develop career decision-making skills in students;

(b) To provide counselors with a program to maximize the students' exploration and utilization of ECES within the context of his career decision-making acquisition;

(c) To provide the student with a systematic program that increased the quantity of career decision-making skills needed to make more logical career decisions.

The DMS conditions included ten classroom sessions, three personal visits with the counselor, and four hours of ECES use. To assess its effect, a Career Decision Making Skill test was constructed and administered before and after the student experienced the DMS. ECES ONLY and Control students were also tested for comparison.

The comparison lead to the following tentative findings:

1. The DMS group gained significantly more than the ECES ONLY and the Control group in career decision making skills and in planning attitudes and insights, as measured by the Career Decision Making Skills test.
2. CDI scores for the three groups indicated that the DMS treatment produced greater gains in attitudinal dimensions of vocational maturity, but not in decision making and information.
3. The DMS group appeared to be much more certain of their career futures than either ECES ONLY group or control groups.

4. The DMS and ECES ONLY group did not differ in the extent to which they had taken steps to implement their present career plans.
5. None of the special conditions influenced students' grade point averages.
6. Control group students had a significantly higher school absentee rate than either DMS or ECES ONLY students.
7. Students reported enthusiasm for ECES and estimated that they were helped by it in planning their futures. DMS students were, in general, more positive than ECES ONLY students.
8. Parents of both DMS and ECES ONLY students had generally positive attitudes toward their children's experiences.

The counselors involved in both the DMS and the ECES ONLY conditions took a basically positive attitude toward the value of the experiences. They regarded the experiences as valuable, especially for tenth and eleventh graders. The more extensive and time-consuming nature of the DMS led to counselor reservations about integrating such a program into the total guidance program. However, there was a wide agreement that the values of the DMS procedure justified the struggle with the feasibility problem.

Finally, it was found that the efficient of ECES and its use need not be subjected to further studies of the large-scale field trial variety. It was concluded from the general facts that: (1) it can be comfortably added to a high school guidance program, (2) students

will use it with enthusiasm, and (3) with appropriate counselor mediated conditions students will benefit from its use.

Evaluation of Research on the Educational Career Exploration System

Although Thompson, Super et. al. reported favorable responses by students, parents and counselors in the 1971-1972 Educational and Career Exploration System's Two-Year Field Trial report, this writer does not feel that those findings reflect a very positive or convincing appraisal based on the reported findings of the 1970-1971 Field Trial report. After reading the two, one finds negative statements made in a very apologetic manner that conveys to the reader much bias.

In particular, the 1971 experiences in the intial phases of the ECES field trial stated the following factors which deserve consideration in evaluating the findings of both studies.[57]

1. The measure of information-seeking behavior, the student weekly Activity Report, was used in ways that reduced student motivation to complete it.
2. Student Questionnaires and Parent Questionnaires provided useful data. However, the two methods of distribution and retrival proved to be unsatisfactory.
3. Counselors were reluctant to provide interview tapes.
4. There were problems with the manner in which the evaluation was being conducted.
5. The evaluation team operated for ten months without funds promised or certainty that they were forthcoming.

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[57]Meyers, Lindeman, Forrest, et. al., Op. Cit.

6. The Genessee Intermediate School District--ECES project suffered from a lack of manpower, resulting in an insufficient supervision of ECES use and insufficient monitoring.

Summary

There are varied theories of the manner in which vocational c choices are made. These theories have many commonalities in their general approach to the problem. It is on these commonalities that counseling has formulated its principles of operation, be it through personal contact or automated systems. It is clear that some difficulties yet remain to be overcome in making the most efficient and effective use of computerized systems for the purpose of aiding the adolescent particularly in vocational and related educational decision making.

The result of the two completed evaluations on ECES show some conflicting results, particularly those which concern the effect of the sex of the subject. In evaluating the results one must necessarily recall the nature of the system to date as well as the evaluative instruments used, and difficulties confronted while conducting the evaluations. The "in house" nature of these evaluations to date can also not be totally disregarded. Both evaluations were made after only one and two years of the system's operation.

The results presented showed that with the pattern of use in the Genessee County schools in 1971 and 1972, ECES appeared to have little practical effect on career development. Non-users increased in vocational maturity approximately the same rate as ECES users. Whether positive effects would be observed under different, perhaps expanded usage patterns, and whether longer-term effects will be observed as the project continues remains to be seen.

CHAPTER III

METHODOLOGY AND DESIGN

Introduction

In Chapter I, a series of questions were asked which, if answered, would supply some insight into the role which computer-based vocational guidance systems play in providing occupational information to youth. Some of these questions were related directly to the issue of resolving personal problems and problem situations in preparing individuals for the world of work as discussed by Campbell,[1] Boocock and Coleman[2] and presented in Chapter II. By way of review, the two general questions were:

1. Are computer-based guidance systems an effective means of providing the kinds of occupational information (job descriptions, working conditions, salaries, etc.) as well as indicating other personal outcomes (aptitudes, abilities, attitudes, interpresonal skills, etc.) necessary for high school students to make appropriate vocational decisions?

2. Will students hold different attitudes toward a dehumanized form of guidance and counseling in securing information related to choosing a vocation and planning for its pursuit?

It is these questions which form the framework for the methodological procedures described in this chapter. They serve as a basis for generating research and statistical hypotheses along with appropriate tests of their adequacy.

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[1]Campbell, Op. Cit.

[2]Boocock and Coleman, Op. Cit.

The study specifically investigates some of the effects of computer-based career guidance and counseling as it is exemplified by the Educational Career Exploration System (ECES). The students who were assigned to this method of vocational guidance and counseling had been so exposed since the beginning of their ninth grade of school. The group, consisting of students from "disadvantaged" home environments, were compared on questionnaire responses with a similar group of students who were helped in making their vocational decisions, choices, and subsequent plans by means of the "traditional" counselor-counselee approach.

The chapter contains first a brief description of the questionnaire used and the manner in which it was developed, including the results of a pilot study to determine the adequacy of the instrument. Pre-study arrangements, including the choice of schools from which the sample was drawn and procedure for sample selection is next discussed. Specific hypotheses to be tested are indicated, along with design of the study for the purpose of related data collection and its subsequent analysis.

Instrumentation (See Appendix B and C)

The questionnaires to which subjects in the Experimental (ECES users) and Control (students exposed only to traditional counseling) groups responded were identical in form and content except insofar as the questions to be answered reflected the group to which they belonged, i.e., the type of counseling to which they were exposed since their ninth grade.

Item selection. The items which provided information from which the hypotheses were tested were empirically derived and some measure of face validity obtained. Scales were developed for responses to each item with the objective of obtaining valid and reliable measurements of the variables contained in the responses. Six individuals professionally affiliated with vocational guidance and counseling and astute in the methodology of survey research were asked to evaluate the items as to their clarity and objectivity in eliciting a valid response. A decision as to which item(s) seemed most appropriate was made, and the items were then selected for inclusion in the questionnaire. Additional items were added for the purpose of discussion and possible illumination of the analyzed results.

The questionnaire consisted of a total of twenty-five multiple-choice response questions and two open-end response items. Four of the items provided categorical information such as grade point average, and the estimated frequency of consultations with the appropriate method of counseling over the two year period. The later provided information for the independent variable, and frequency of visits used in the study. Eleven items required responses which were related to the six primary and four secondary additional hypotheses being tested. The remainder of the items provided supplementary explanations to the above questions and aided in discussion of the responses; or were requests for evaluation of the method to which the students had been exposed.

The pilot test. The major purpose for administering a pilot test of the questionnaire to be used in the study was to assess the feasibility of gathering and analyzing such data obtained from a larger sample of students. It was necessary to provide the most appropriate means of communicating the intended questions to the respondents without at the same time employing unintended cues to responses. Development of appropriate instructions for administration of the instrument were also important. The pilot study provided some assessment of the appropriateness of items for the target population. (See Appendix E).

The questionnaire was administered to a random sample of fifty-four junior high school students at Ecorse High School (see Appendix E). These students were similar in socio-economic home environments to those in the intended survey sample. Since this school was one in which only the traditional counseling approach was utilized, only the "Student Reaction Form - TC" was distributed. Prior to the administration of the pilot test, the questionnaire was shown to all counselors and their approval obtained for its use in the school. A special meeting was scheduled for the purpose of administering the questionnaire. Prior to completing the questionnaire the students were requested to read the instructions and to ask any questions which would help them better understand the task. They were then asked to write their responses to the items on the questionnaire and return it to the examiner after completing the responses.

The results of the pilot study were encouraging. Some minor inadequacies were noted in the wording of some specific questions. Observations of students and personal interactions with respondents as the questionnaires were returned provided the author with some negative reactions in reference to its length (then consisting of thirty-five items). Instructions were found to be easily understood.

This effort resulted in some minor modifications to the instrument. Some items, after careful scrutiny, were deemed to be repetitious in that responses to them did not appear to provide substantial additional information toward answers to the two basic questions. On this basis, eight items were eliminated and three others were re-worded in the interest of increased clarity. Similar changes were made in the "Student Reaction Form - ECES". [See Appendices B and C for instrument, with mean, standard deviation and Kuder-Richardson (Formula 8) reliability index of individual items].

Procedure

Permission to conduct the study was granted by the Vocational Education and Career Development Service in the Michigan Department of Education, and the Superintendent of Schools and the Director of Vocational Education for the Genessee County Intermediate School District.

With cooperation of the Director of Vocational Education, arrangements were made for a general meeting of all counselors and school administrators from those schools selected for inclusion in

the study to devise the procedure which appeared most appropriate for collecting the data. Counselors and administrators were most cooperative and indicated a level of understanding upon which it was felt that the research could be successfully conducted. All except two of the schools initially selected as appropriate for participation were utilized. The exceptions were Grand Blanc and Swartz Creek Schools. The later two refused participation because of their involvement in previous investigations related to the ECES project.

A portion of the investigation concerned student interaction with the counselors and an evaluation of their effectiveness. It was not considered most appropriate to enlist their cooperation beyond assistance in selection of the sample, acquisition of such data as grade point averages for students, and a general understanding of the study. However, the Director of Student Personnel Services at the Board of Education would agree to having the students participate only if Counselors in the schools were the ones to collect the data under instruction and contained monitoring by the researcher.

The Sample

Selection of schools. The subjects participating in this study consisted of three hundred and forty-six (346) junior high school boys and girls from selected school districts within the Genessee County Intermediate School District.

There were twenty-one school districts in the County. Eleven of these school districts had installed and utilized the computer-assisted guidance programs known as the Educational Career Exploration

System (ECES). Five schools were selected for inclusion in the study. They included Flint Northwestern, Flint Northern, Atherton, Beecher, and Kearsley High Schools. These schools were selected on the basis of the following criteria:

1. Extent of federal (ESEA Title III) support allocated to them for operation during the 1973-73 fiscal year. (See Table 3 for data which indicate the federal support for each of these schools per student when compared with schools of similar student populations within the same county.)

2. Location of the schools in predominantly "disadvantaged areas."

3. Utilization of ECES counseling facility to its students.

While Beecher, Flint Northern, and Flint Northwestern were predominantly, if not entirely black in their student composition, the student body in Kearsley and Atherton school were from outlying poor rural white residential areas. When compared with inner-city black populations though, both groups often experience and exist under similar economically inadequate circumstances.[3]

It is clear from data in Table 3.1 that schools servicing primarily "disadvantaged" student populations (i.e., those from which the sample was drawn) received proportionately larger amounts of financial assistance and other federal support per student as furnished by the ESEA Title III legislation. As per the federal

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[3]Frank Bobbitt and L. Letwin, "Techniques for Teaching Disadvantaged Youth in Vocational Education", (Paper #14, Secondary Education and Curriculum Department, College of Education, MSU, East Lansing, December, 1971).

requirements for such support, the majority of children from these extensively supported schools were from homes partially or entirely supported by Public Welfare funds.

Selection of the sample. The sample of respondents was selected by means of a stratification procedure with school district and sex of subjects being used as the variables upon which such stratification was made. The stratification on the basis of school was performed in an effort to minimize any effect which might be the result of response based on a chance predominance of students from any single school district.

A differential of responses between male and female subjects was indicated by previous evaluations of ECES in the Genessee County High School field trial conducted by Lindeman, Forrest and others and discussed in Chapter II. Statistically significant differences were reported in favor of females on the Decision Making and Information subscales of their instrument.[4] The same factor may be reflected in responses in the present study. The differential maturity rate between males and females[5] predominant in the literature is also reflected in this approach to the sample selection.

From each of the five schools included in the study a proportionate number of male and female students who had been

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[4]Lindeman, Forrest, and others, Op. Cit.

[5]Ibid.

Table 3.1

Relative Deprivation of Schools in Genessee County as Funded by Federal Title III Monies FY 1972-1973

School Dist. (High School)	District Population (K-12)	School Population (Senior High)	Total Federal Allocation	School Allocation	Percent of District K-12 Pop.	Amount of Federal Money Per Student
Atherton**	2,295	514	$ 30,880.00	$ 6,917.12	22.40	$13.46
Beecher**	6,268	1,104	250,946.00	44,191.59	17.16	40.83
Bendle	2,341	472	52,938.00	10,671.70	20.16	16.75
Bentley	2,492	673	22,227.00	5,681.22	25.56	8.92
Carman	9,006		84,327.00			
Answorth		1,246		11,662.42	13.83	9.36
Carman		1,798		16,831.67	19.96	9.36
Clio	5,595	1,660	49,035.00	14,548.68	29.67	8.76
Davidson	6,078	1,924	35,801.00	11,334.60	31.66	5.89
Fenton	3,701	1,226	26,299.00	8,712.86	33.13	7.11
Flint	44,640		1,794,796.00			
Northern**		2,455		98,713.78	5.50	5.50
Northwestern**		2,289		92,073.83	5.13	5.13
Flushing	6,048	1,953	30,880.00	9,971.15	32.29	32.29
Genessee	756	231	10,689.00	3,265.49	30.55	14.14
Goodrich	1,326	381	4,412.00	1,267.57	28.73	3.33
Grand Blanc	8,258	2,812	45,981.00	15,656.53	22.91	11.10
Kearsley**	6,023	1,380	66,851.00	15,315.56	56.90	4.11
Lake Fenton	2,146	1,221	8,823.00	5,020.29	28.60	12.84
Linden	2,428	706	13,064.00	3,799.01	29.08	5.38

Table 3.1 (continued)

School Dist. (High School)	District Population (K-12)	School Population (Senior High)	Total Federal Allocation	School Allocation	Percent of District K-12 Pop.	Amount of Federal Money Per Student
Montrose	2,150	702	28,675.00	9,362.39	32.65	13.34
Mt. Morris	3,976	935	33,086.00	7,781.83	23.52	8.32
Swartz Creek	5,754	1,626	32,238.00	9,110.46	28.26	5.60
Westwood	2,324	829	24,451.00	8,721.67	35.67	10.52

SOURCE: Superintendent of Schools, Genessee Intermediate School Districts

**Schools involved in the sample.

using ECES since the beginning of the ninth grade were randomly selected as participants in the experimental group. Similarly, a comparable group of students exposed only to traditional counselor-counselee relationships was selected to participate in the control group within each school. Of a total of three hundred sixty-eight (368) questionnaires returned by the counselors, it was necessary to discard twenty-two of these as a result of incorrect completion of questionnaires leaving a total of three hundred forty-six (346) complete responses which were analyzed and from which the results were obtained. Table 3.2 shows the sample distribution of subjects from which the data was collected.

Data Collection

In order to efficiently collect the necessary information, as soon as those students participating in the Experimental and Control groups were identified for each school district, arrangements were made by the counselors for a general meeting of students from that district to take place. Prior to the day of their meeting, classroom teachers were instructed by the counselors to explain briefly to the students that an effort was being made to assess the effectiveness of the counseling they had received over the previous two years. Such an assessment in the form of responses to a questionnaire from a sample of the students was important to the school district in planning for future changes in the counseling program.

Table 3.2

Sample Distribution of "Disadvantaged" Student by Program, Sex, School and Race

	Type of Counseling Program						Total by School	Total by Racial Composition of Students
	Male	Female	Total	Male	Female	Total		
Black								
Northern	19	12	31	9	20	29	60	
Northwestern	15	24	39	5	17	22	61	
Beecher	20	18	38	21	14	35	73	
								194
White								
Atherton	21	21	42	13	16	29	71	
Kearsley	15	23	38	23	20	43	81	
								152

Table 3.2 (continued)

	Male	Female	Total	Male	Female	Total	Total by School	Total by Racial Composition of Students
Total ECES Male	90							
Total ECES Female		98						
Total ECES			188					
Total Traditional Male				71				
Total Traditional Female					87			
Total Traditional						158		
TOTAL							158	346

The counselors scheduled meetings with students during a three week period. Students assigned to the experimental and control groups responded to the questionnaires simultaneously. Each questionnaire was assigned a code number so that the students did not have to use their names. The counselors read the instructions and the purpose of the questionnaire were understood, they were instructed to complete and return it to the counselor.

Experimental Design

The design used in this study takes a form similar to Campbell and Stanley's Post-test Only Control Group Design.[6] This is so in that the group which experienced the treatment (interaction with ECES) is compared with one which did not (but rather, had continued to engage in the traditional approach) for the purpose of establishing the effect of the treatment (ECES).

While a possible criticism which might be leveled against such a design is that of initial bias due to selective recruitment of the groups, it is important here to note that students originally assigned to ECES were randomly selected from their ninth grade class within each school. The remainder of the class continued in the traditional approach. It is from these groups that random samples were drawn for this study. Within the limits of confidence stated by the tests of significance, such random selection can suffice

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[6]D. T. Campbell, and J. C. Stanley, Experimental and Quasi-Experimental Designs for Research, (Chicago: Rand McNally and Company, 1968), pp. 23-27.

without a pretest, which, in introducing a program of this nature, are in the ordinary sense almost impossible.

In a similar design with a pretest measure, examination of the interaction of treatment and pretest ability level is made possible, thus exploring the generalizability of the finding more thoroughly. In the absence of such a pretest, however, use of "questionable" variables as blocking, leveling, or covariate variables seem indicated.

The literature indicates evidence of a positive correlation between student ability and attitude toward or perception of school related events and programs. With this as a basic consideration, grade point average was incorporated as a covariate in the study. Such an effort was included to minimize any effect that may be here attributed, while at the same time attempting to incorporate the variable as an independent one in a study of such complexity. The effect of the use of grade point average as a covariate was basically to provide an increase in the power of the significance test very similar to that which could otherwise be provided by a pretest; such gain in precision corresponding directly to the degree of covariance. Campbell and Stanley indicate that while in the use of pre- and post-tests, "the degree of covariance is usually higher for alternative forms of the 'same' test than for 'different' tests, it is a matter of degree, and something as reliable and factorially complex as a grade point average might turn out to be superior to a short pretest.[7]

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[7] Ibid., p. 26.

A second invalidating factor may be seen by some as the effect of experimental mortality, or the production of differences between the Experimental and Control groups. However, since the sample selection for the post test was made only from those students in both groups who were in the eleventh grade, and who had continued in school since their ninth grade, the question of mortality was thus eliminated.

Since school and sex of subject were used as stratification variables, subsequent analyses including these factors in relation to selected independent variables were also considered. (See Set 2). Since previous research mentioned earlier indicated sex differences on a Decision Making subscale, for example, this effect in relation to certainty of occupational choice also seemed an appropriate analysis for further investigation as part of the study. Differential responses to overall evaluation of ECES in relation to school district from which students were drawn was also analyzed to see further clarification of the overall findings. Students selected from Atherton and Kearsley schools were all white students, while those from Flint Northern, Flint Northwestern, and Beecher were black students. Students were also asked to indicate their high school program in which they were enrolled. Subsequent analyses were also made which considered the relationship of these to the responses of students. All hypotheses were stated in a null form.

Set 1

H_1: There will be no differences between the frequency of changes in career choice of eleventh grade students who have been using ECES and those who have been primarily utilizing traditional counseling relationships since the beginning of their ninth grade.

H_2: There will be no difference between the level of overall certainty with regard to their chosen careers between eleventh grade students who have been primarily using ECES and those who have been primarily utilizing traditional counseling relationships since the beginning of their ninth grade.

H_3: There will be no difference between the instances of movement (where changes have occurred) within versus outside occupational families for eleventh grade students who have been primarily using ECES and those who have been primarily utilizing traditional counseling relationships since the beginning of their ninth grade.

H_4: There will be no difference in the feeling of personal involvement in the choices of careers expressed by eleventh grade students who have primarily utilized ECES and those who have utilized traditional counseling relationships since the beginning of their ninth grade.

H_5: There will be no differences in the personal preference toward methods of counseling (ECES vs traditional)

expressed by eleventh grade students who have primarily utilized ECES and those who have utilized traditional counseling relationships since the beginning of their ninth grade.

H_6: There will be no difference in the feeling of flexibility toward job choices open to them expressed by eleventh grade students who have primarily utilized ECES and those who have utilized traditional counseling relationships since the beginning of their ninth grade.

Set 2

H_1: There will be no difference between ECES and Traditional counselees in their over-all evaluation of the method of counseling with which they were provided.

H_2: There will be no differences in overall evaluation of ECES among groups of students from each of the five schools included in the study.

H_3: There will be no differences in overall evaluation of ECES between students in schools with predominantly white as compared with predominantly black enrollment.

H_4: There will be no difference in over-all evaluation of ECES among students enrolled in general academic, college preparatory and vocational high school programs.

Analysis

A multivariate analysis of variance was used in analyzing the questionnaire responses of the students in relation to the six primary hypotheses. The type of counseling experienced by the respondents over the two year period (whether ECES or Traditional counseling) on the one hand; along with the frequency of respondent visitations to the method, and sex of the student on the other; comprised the primary independent variables. Other secondary independent variables considered were predominant racial enrollment of the school, high school program of study in which the student was enrolled, and schools from which students were selected. The dependent variables of interest in this analysis were: (1) number of changes in career choice, (2) level of overall certainty concerning choice of a career, (3) level of personal expressed involvement with that choice; (4) personal preference for a particular method of counseling and (5) expressed feeling of flexibility concerning possible movement from their present choices.

A univariate analysis of variance procedures was used to analyze the responses related to a 6th dependent variable - nature of movement (within, outside, or both within and outside occupational families) when changes in career choice did in fact occur.

A multivariate analysis of variance procedure was used to analyze responses to an overall evaluation of the counseling they received by students from (a) each of the five schools, (b) schools with predominantly white versus predominantly black enrollment, and

(c) responses from students enrolled in different high school programs (college preparatory versus general academic versus vocational) concerning their overall assessment of the Educational Career Exploration System. In all the analysis carried out, cummulative grade point average of the student since the ninth grade was used as a covariate measure.

The multivariate analysis of variance computer program used in analyzing student responses in this research was distributed by Clyde Computing Service of Coconut Grove Station, Miami, Florida for use with large computers, and was adapted for The Ohio State University Research Center by David Poor and Lorne Rosenblood. This method permitted individual multivariate analysis in relation to five hypotheses by indicating variations in the dependent variables as a function of response to each item which contributed to a single independent (method, level of usage and sex of subject) variable. It also provided a univariate analysis by which the contribution of each item to the multivariate F value and probability value could be determined. An alpha level of .05 was selected as the point at which each null hypothesis was rejected.

The univariate analysis of variance procedure used to analyze responses related to the dependent variable of movement from one career choice to another permitted a look at variations on each of the independent variables as a function of responses to the single item indicating this criteria.

In an effort to elucidate the results obtained in the analysis of responses concerning each hypothesis, Chi Square analyses using a

frequency count of responses chosen in relation to each of the independent variables of interest on additional items were made and used in the discussion. Here too, alpha levels of .05 were selected as the point at which the significance of differences indicated would be determined.

All statistical analyses were computed on a 370 Computer at the Ohio State University Research Center.

Summary

The sample for this study consisted of three hundred and forty six (346) junior high school students randomly selected from five schools participating in a pilot project implementing a new computer based career decision making and planning approach. All schools were located within the Genessee County Intermediate School District.

One hundred and eighty-eight (188) of these students (90 males and 98 females) had been assigned to computerized guidance and counseling systems of the ECES variety at the beginning of their ninth grade in school. The remaining one hundred and fifty eight (158) students (71 males and 87 females) had utilized only traditional methods of counseling as they sought information, made career decisions and choices, and subsequent plans for the pursuit of such goals. The former group in the study were considered to be participating in an Experimental Group, the later comprised the Control group. All students who participated in the study were selected from schools located in "disadvantaged" areas, and which were elgible for, and were current recipients of substantially

larger sums of federal financial assistance under the Elementary and Secondary Education Act (Title III legislation) during the 1972-1973 fiscal year than other schools in the same intermediate district.

A questionnaire was utilized to collect information relative to a number of changes in career choice, level of certainty concerning choices, expressed feeling of personal involvement in choice, preference for kind of counseling and expressed feeling of flexibility concerning movement among occupations of all students. A multivariate analysis of variance was used to investigate the differences in responses between the Experimental and Control groups in relation to the sex, frequency of their interaction, and the method to which they had been assigned since the beginning of their ninth grade. A univariate analysis of variance was used to analyze responses concerning movement in relation to occupational families as choices were crystalized. A Chi Square analysis of variance procedures assessed the overall evaluation of the Educational Career Exploration System as this was related to students from individual schools, current program in which students were enrolled, and racial composition of schools.

CHAPTER IV

ANALYSES AND RESULTS

Introduction

The results of the study are presented in two major sections in this chapter. They are:

1. Analysis of the findings related to the effectiveness of the ECES as compared with Traditional counseling procedures when used with "disadvantaged" youth over a two-year period. These indices are expressed in the six primary hypotheses which were tested.
2. Analysis of the effects as portrayed in an overall evaluation of the effectiveness of ECES as compared with Traditional counseling methods:
   a. by all students in the sample;
   b. among high school students from each of the five sample schools;
   c. among students enrolled in general-academic versus college preparatory versus vocational high school programs;
   d. between students enrolled in schools with predominantly black versus predominantly white enrollments.

The six selected indices of counseling effectiveness around which the six primary hypotheses were constructed were: (a) frequency

of changes in career choice; (b) level of overall certainty concerning choice; (c) instances of movement within versus outside occupational families as career choices were made; (d) feeling of personal involvement in the making of the career choice; (e) expressed personal preference for method of counseling; and (f) feeling of flexibility toward jobs open to them without additional specialized training in their chosen career field. These six variables formed the central core of the six primary hypotheses. The independent variables in the study were method of counseling, degree of usage of the methods, and sex of subjects. All but one of the research hypotheses related to these primary hypotheses were tested using a series of multivariate analyses of variance procedures. The hypothesis related to instances of movement as career choices were made was analyzed using a univariate analysis of variance procedure. Chi Square analyses were used to test the effect of other responses intended to elucidate the findings of several of the individual hypotheses. Two multivariate analysis of variance procedures were used to analyze responses of subjects on thirteen items related to a more global evaluation of the counseling they received over the two and a half year period. Grade point average was used as a covariate measure in the univariate and multivariate analyses.

Results

Section I: Tests of selected indices of effectiveness of ECES versus traditional counseling.

H_1: There will be no difference between the frequency of changes in career choice of eleventh grade students who have been primarily utilizing Traditional

counseling relationships versus those who have been using the ECES since the beginning of their ninth grade.

There were no significant differences on this dimension between the two groups of counselees. The results of the multivariate analysis of the responses of students to the items which reflect effectiveness is given in Table 4.1.

Table 4.1

Multivariate Analysis of Variance of Scores Related to Frequency of Changes in Career Choice

Type of Variance Tested	F Test of MANOVA of Changes in Career Choice		
	F	d.f.	Significance Level
C (Counseling Method)	.732	1	.482
S (Sex)	2.057	1	.130
U (Degree of Usage)	.610	2	.655
CS	.825	1	.439
CU	1.615	2	.169
SU	1.401	2	.232
CSU	2.024	2	.090
Covariate (GPA)	2.024	2	.296
Error		294	

α = .05

These results indicated that at F - .732 with 1 and 294 degrees of freedom, the hypothesis of no difference due to counseling method was retained when a probability level of .05 was used. The mean scores on this measure of effectivenss for ECES counselees was 3.14.

While that for Traditional counselees was 3.33. The difference of 0.19 between the means of the two groups was not a statistically significant one. The mean score of 3.33 indicated the Traditional counselees, on the average, changed their career choices more frequently.

H_2: There will be no difference between the degree of certainty concerning career choice of eleventh grade students who have been using ECES and those who have primarily utilizing Traditional counseling relationships since the beginning of their ninth grade.

The results of the multivariate analysis of responses on items related to this hypothesis are presented in Table 4.2.

Table 4.2

Multivariate Analysis of Variance of Scores Related to Degree of Certainty Concerning Career Choice

Type of Variance Tested	F Test for MANOVA of Certainty Concerning Career Choice		
	F	d.f.	Significance Level
C (Counseling)	3.106	1	.046**
S (Sex)	.323	1	.724
U (Degree of Usage)	.820	2	.513
CS	.764	1	.467
CU	.718	2	.580
SU	.686	2	.602
CSU	.983	2	.416
Covariate (GPA)			.056
Error		281	

$\alpha = .05$

As indicated by data in Table 4.2, a multivariate F ratio of 3.106 with 1 and 281 degrees of freedom with a probability value of .04 was computed for the effect of counseling method. This finding resulted in a rejection of the null hypothesis, indicating, in effect, that there was a significant difference between students who had utilized the ECES method of counseling as compared with those who had received the Traditional form of counseling over the two year period from their ninth through eleventh grades. This difference was in favor of Traditional counselees whose degree of certainty regarding their career choices was at a higher level than for the ECES counselees.

The effect of the covariate, grade point average, considered in this analysis was not significant at an alpha level of $p = .05$ indicating that there existed no noteworthy difference in certainty concerning career choices on the part of students with varying academic ability standings as expressed by grade point average. Even without the adjustment of mean scores for this already existing difference, however, it was found that students who were recipients of Traditional counseling had mean scores of 3.53 as compared with a corresponding mean score of 3.4 for those who utilized the ECES procedure. These scores thus still showed a difference of .11 in favor of the Traditional counselees. This comparison is shown in Figure 4.1.

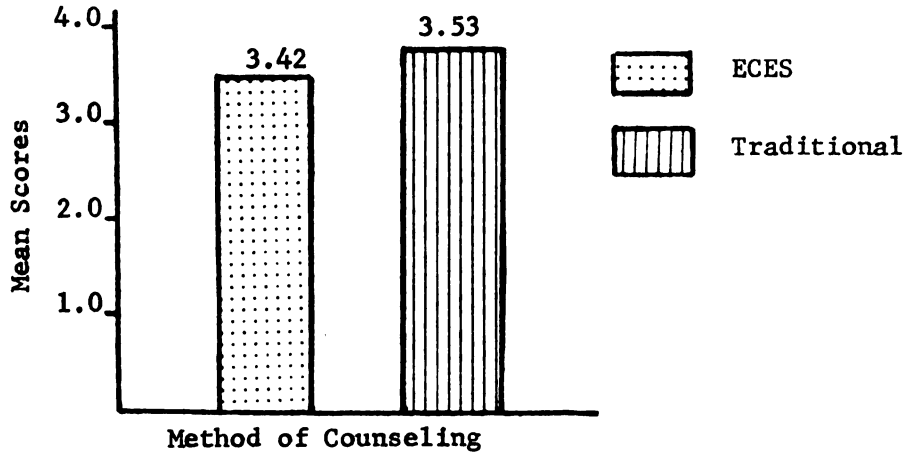

Figure 4.1

Comparison of ECES versus Traditional Counseling on Certainty Concerning Career Choice

There were particularly significant differences between the two groups in favor of Traditional counselees in response to an item which sought answers to what students felt they would like to be doing ten years hence. On the univariate test of scores related to certainty, the F ratio for this item was 4.188 which, with 1 and 281 degrees of freedom, was significant at an alpha level of $p = .04$.

H_3: There will be no difference between the instances of movement (where changes have occurred) within versus outside occupational families for eleventh grade students who have been primarily using ECES and those who have been primarily utilizing Traditional counseling relationships since the beginning of their ninth grade.

Table 4.3 gives the results of the univariate test associated with this hypothesis.

Table 4.3

Univariate Analysis of Variance of Scores Related to Instances of Movement Across/Within Job Families as Career Choices were Made

Type of Variance Tested	F Test for ANOVA on Instances of Movement				
	Sums of Squares	Mean Square	F	d.f.	Significance Level
C (Counseling)	.005	.005	.008	1	.927
S (Sex)	6.165	6.165	9.790	1	.002*
U (Degree of Usage)	1.743	.871	1.348	2	.253
CS	2.732	2.732	4.339	1	.039**
CU	4.194	2.097	3.330	2	.038**
SU	.260	.130	.207	2	.814
CSU	4.478	2.239	3.556	2	.031**
Covariate (GPA)					.878
Error				168	

$\alpha = .05$

The hypothesis of no difference between ECES and Traditional counselees on instances of movement as career choices were made was not rejected. Examination of Table 4.3 reveals, however, that there were:

(a) a significant interaction between method of counseling and the frequency of usage of those methods by subjects;

(b) significant differences between male and female subjects without regard for the method of counseling used;

(c) a significant interaction between method of counseling and sex of subjects; and

(d) a significant interaction among method of counseling, frequency of usage made of the methods, and sex of the subjects

on their scores related to such instances of movement across as compared to within job families.

Table 4.4 presents data about the distribution of respondents on the basis of variabtion in their usage of the counseling methods to which they were assigned. There were a total of fifty-three students who were dropped from the analysis because of incomplete cells in this portion of the study.

Table 4.4

Distribution of Students on the Basis of Variation in Usage of Counseling Services

Frequency of Usage of Counseling Service	Method of Counseling				
	ECES		Traditional Counseling		
	Males	Females	Males	Females	Totals
Once Every Month or Less	34	50	3	12	99
Once Every 2-4 Months	15	5	18	25	63
Once Every Six Months To 1 Year	34	26	33	38	131
Total	83	81	54	75	293

Considering first the interactive effect of counseling method and degree of usage of the methods on nature of movement as career choices were made, Table 4.5 gives the associated means and Figure 4.2 displays this significant effect.

Table 4.5

Mean Scores for Instances of Movement Across/Within Job Families as Career Choices were Made Showing Interaction Between Method of Counseling and Degree of Usage of the Methods

Method of Counseling	Once Each Month or Less	Once Every 2-4 Months	Once Every 6 Months to 1 year
ECES	1.71	2.27	1.86
Traditional	2.30	1.79	1.72

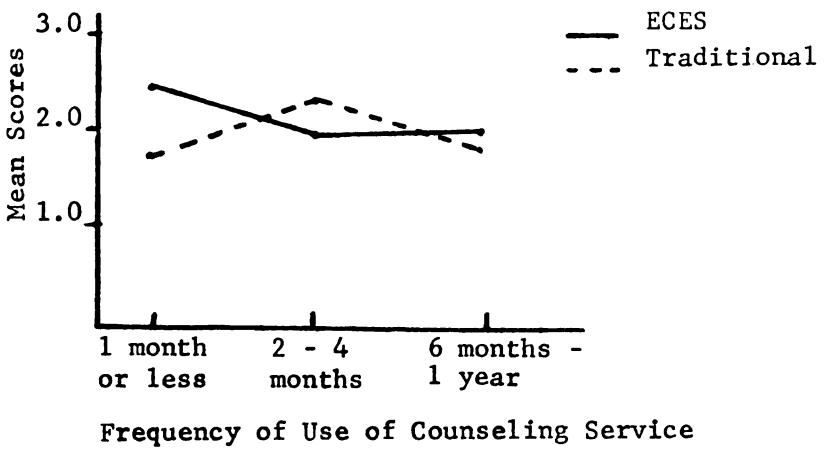

Figure 4.2

Interaction of Method of Counseling and Degree of Usage of Instances of Movement Across/Within Job Families as Career Choices Were Made

It is seen that while frequent (interval of 1 month or less) users of Traditional counseling scored higher ($\bar{x}$ = 2.30) than frequent users of ECES ($\bar{x}$ = 1.71), this finding was reversed with less frequent usage of the methods. That is to say, when both Traditional and ECES counselees made use of their appropriate avenues of counseling at the less frequent rate of once every two to four months, the ECES users then showed higher instances of movement across job families

($\bar{x}$ = 2.27) than did Traditional counselees ($\bar{x}$ = 1.79). This finding persisted with decreased frequency in use of counseling for both groups but also diminished, until, for those who consulted with their assigned methods only at a rate of once every six months to one year, the differences in instances ov movement for ECES ($\bar{x}$ = 1.86) versus Traditional ($\bar{x}$ = 1.72) counseling, averaged only scores of .14 in favor of the ECES group. This interactive effective of counseling method and degree of usage resulted in an F value of 3.330 which, with 2 and 168 degrees of freedom, yielded a results significant at a probability level of .038.

With an F value of 9.970, and with 1 and 168 degrees of freedom, Hypothesis$_3$ of no difference on this variable due to sex of the subject was rejected at a probability level of .002.

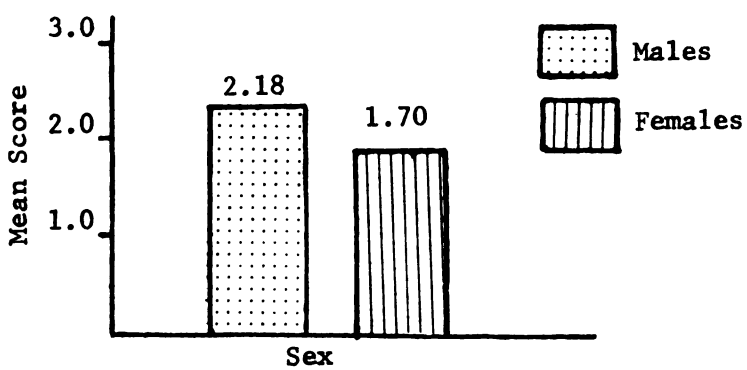

Figure 4.3

Comparison of Male and Female Subjects on Instances of Movement Across/Within Job Families as Career Choices were Made

As can be observed in Figure 4.3, the mean scores obtained were in favor of male subjects ($\bar{x}$ = 2.18) as compared with females who averaged lower scores of $\bar{x}$ = 1.70, yielding a difference score of

.038 between the mean scores of the two groups. The males, on the average, made 0.48 fewer shifts across/within job families as career choices were made than did the females.

Table 4.6 presents the differential movement between the two groups of subjects as such choices were made. Here we see that a larger proportion of females (50 percent) appeared to change career choices to areas outside those previously considered than did male (34 percent) students.

Analyzed by means of a Chi Square procedure, this differential proportion of external movement within each, and between the two groups was, in accordance with the multivariate analysis of the

Table 4.6

Instances of Indicated Movement Outside vs Within Job Families for Male and Female Sugjects as Career Choices Were Made

Sex	Nature of Job Family Movement			Total
	Outside	Outside & Within	Within	
Males	28 (33%)	26 (33%)	29 (33%)	83
Females	54 (49%)	32 (29%)	23 (22%)	109
Total	82	58	52	192

obtained scores, found significant. In the results of a x^2 analysis of this portion of the data, the resulting x^2 value was 6.15, which, with 2 degrees of freedom, was significant at a probability level of .05. Further, of the sample of students who responded, there were 117 males who had decided on a career as compared with 39 who had not yet decided and a corresponding 140 and 44 females respectively.

A x^2 analysis of these differences in nature of decision versus indecision was not significant however.

The difference becomes more informative when the differences in the expected direction persist if ECES and Traditional counselees are considered separately. (See Table 4.7 and Figure 4.4).

Table 4.7

Mean Scores on Instances of Movement Across/Within Job Families Showing Males and Females Assigned to ECES and Traditional Counseling

Sex	Method of Counseling	
	ECES	Traditional
Males	2.03	2.33
Females	1.87	1.53

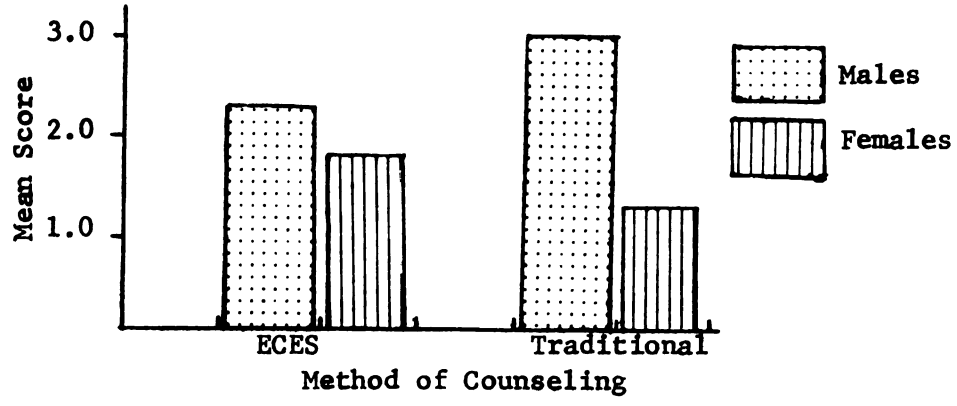

Figure 4.4

Comparison of Male and Female Subjects Assigned to ECES and Traditional Counseling on Instances of Movement Across/Within Job Families

Such differences were found to be greater for subjects who utilized the Traditional form of counseling relationships in reaching their

vocational decisions. Here, male subjects ($\bar{x}$ = 2.33) score an average of .80 points above that for females ($\bar{x}$ - 1.53). A somewhat lower difference, that of .16, was again obtained in favor of males who used the ECES in making their career decisions. This interaction of counseling with sex of student yielded an F value of 4.339 which was found to be significant at a probability level of .04.

The fourth significant finding related to instances of movement across job families was that affected by a combination of the counseling method, the sex of the subjects, and the degree to which the methods were used. In this instance, with F - 3.556 and with 2 and 168 degrees of freedom, a probability value of .04 was also indicated.

Table 4.8 gives the means associated with this interaction. Figure 4.5 graphically presents a visual summary of this effect.

Table 4.8

Mean Scores for Instances of Movement Across/Within Job Families as Career Choices Were Made Showing Interaction Among Sex of Subject, Method of Counseling, and Degree Usage of Method

Frequency of Usage of Counseling	Method of Counseling	
	ECES	Traditional
Males		
1 month or less	2.125	1.813
2 - 4 months	2.364	2.188
6 months - 1 year	1.600	3.000

Table 4.8 (continued)

Frequency of Usage of Counseling	Method of Counseling	
	ECES	Traditional
Females		
1 month or less	1.600	1.619
2 - 4 months	2.167	1.385
6 months - 1 year	1.829	.699

Here it can be seen that for males who used the Traditional counseling the average number of career choice movements across/within families increased with the less frequent use of counseling while the situation was reversed for the females in Traditional counseling. The difference in mean scores between meales and females using Traditional counseling were 0.19, 0.80, and 2.30 for frequent, moderate, and infrequent usage respectively. On the other hand, the students, both male and female who used ECES reported more frequent movement across/within job families as the frequency of usage of counseling was decreased except for the ECES with the least frequent use of counseling. When use was made of ECES only once every 6 months to one year the mean scores for each group showed a decline.

H_4: There will be no difference in the feeling of personal involvement in their choice of careers expressed by eleventh grade students who have primarily utilized ECES and those who have utilized traditional counseling relationship since the beginning of their ninth grade.

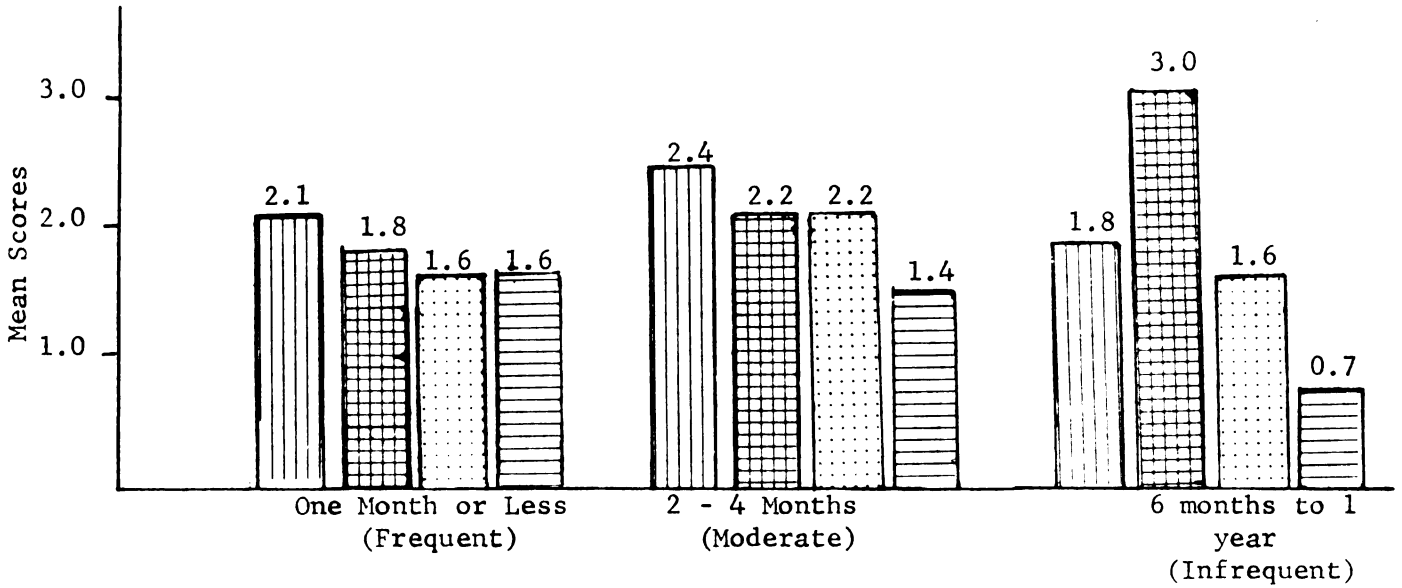

Figure 4.5

Interaction of Sex of Subject, Method of Counseling and Degree of Usage on Instances of Movement Across/Within Job Families as Career Choices Were Made

Male, ECES

Male, Traditional

Female, ECES

Female, Traditional

The results of the multivariate analysis of these responses are presented in Table 4.9.

A multivariate F ratio of 2.05 was computed which, with 1 and 254 degrees of freedom, yielded a probability value of .11. Therefore, the null hypothesis of no significant difference between ECES and Traditional counselees on expressed feeling of personal involvement was not rejected. It is noted, however, that when the subjects were differentiated into groups according to the extent of the usage made of the methods to which they had been assigned, significant differences were found in their expressed feelings of personal involvement in making their career choices. Data in Table 4.10 illustrated in Figure 4.6 show this difference.

The mean difference between ECES ($\bar{x}$ = 2.65) and Traditional ($\bar{x}$ - 2.77) counselees when the methods were used on an approximate

Table 4.9

Multivariate Analysis of Variance of Scores Related to Feeling of Personal Involvement in Making Career Choices

Type of Variance Tested	F Test for MANOVA of Personal Involvement		
	F	d.f.	Significance Level
C (Counseling Method)	2.050	1	.107
S (Sex)	2.389	1	.069
U (Degree of Usage)	.908	2	.488
CS	.550	1	.649
CU	2.622	2	.016**
SU	.268	2	.952

Table 4.9 (continued)

Type of Variance Tested	F Test for MANOVA of Personal Involvement		
	F	d.f.	Significance Level
CSU	.988	2	.433
Covariate (GPA)			.165
Error		254	

α = .05

Table 4.10

Mean Scores for Feeling of Personal Involvement with Career Choice Showing Interaction Between Degree of Usage and Method of Counseling

Method of Counseling	Frequency of Usage		
	Every 1 month or less	Every 2 - 4 months	Every 6 months - 1 year
ECES	2.65	2.52	2.82
Traditional	2.77	2.97	2.69

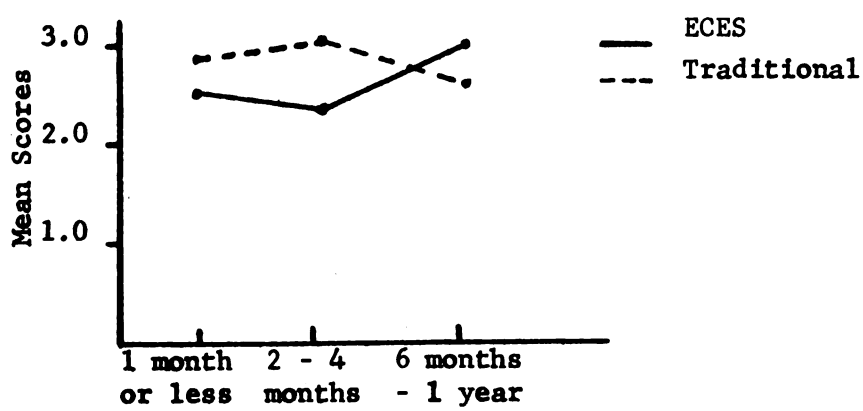

Figure 4.6

Comparison of ECES and Traditional Counselees on Feeling of Personal Involvement with Career Choices by Degree of Usage of Methods

once per month or more frequent basis was 0.12 in favor of Traditional counselees. The findings again favored this latter group by an even larger margin of 0.45 when the usage rate averaged once every 2 to 4 months. With less frequent usage of once every 6 months to one year, however, the findings were found to reverse. ECES users average score was 2.82 which surpassed the average for Traditional counselees ($\bar{x}$ = 2.69) by a difference of 0.13. Grade point average of subjects was not found to be a significant factor (p - .17) in this interaction, as shown in Table 4.10.

In particular, one item which contributed significantly (p - .01) to this degree of personal involvement sought the response of subjects to their mode of action if they wished to find out more about working conditions and chances for employment in their chosen career fields; and it was stated that this information was not immediately accessible except at a ten mile distance. Responses to this item were significantly different for the two groups of counselees according to their degree of usage of counseling at an alpha level of p = .02. (See Appendix F).

H_5: There will be no difference in the personal preference toward method of counseling expressed by eleventh grade students who have primarily utilized ECES and those who have utilized traditional counseling relationships since the beginning of their ninth grade.

There was not a statistically significant difference (F = .84, d.f. = 1 and 280) between ECES and Traditional counselees in their expressed personal preference for method of counseling. Table 4.11 gives the results of this multivariate analysis.

Table 4.11

Multivariate Analysis of Variance of Scores Related to Personal Preference for Method of Counseling

Type of Variance Tested	F Test for MANOVA of Preference for Method		
	F	d.f.	Significance Level
C (Counseling Method)	.280	1	.840
S (Sex)	.864	1	.460
U (Degree of Usage)	.529	2	.787
CS	.888	1	.448
CU	.536	2	.781
SU	.738	2	.619
CSU	.471	2	.830
Covariate			.135
Error		280	

$\alpha = .05$

The average score obtained by ECES counselees ($\bar{x} = 2.91$) showed no difference when compared with that obtained by Traditional counselees ($\bar{x} = 2.93$) on this dimension.

H_6: There will be no difference in the feeling of flexibility toward job choices open to them expressed by eleventh grade students who have primarily utilized ECES and those who have utilized Traditional counseling relationships since the beginning of their ninth grade.

Table 4.12 presents the results of the analysis of scores relative to this dimension of the study.

Table 4.12

Multivariate Analysis of Variance of Scores Related to Feeling of Flexibility Toward Jobs Available

Type of Variance Tested	F. Test for MANOVA of Flexibility Toward Jobs		
	F	d.f.	Significance Level
C (Counseling Method)	.566	1	.569
S (Sex)	4.860	1	.008**
U (Degree of Usage)	.443	2	.778
CS	1.490	1	.227
CU	.782	2	.537
SU	1.601	2	.172
CSU	.282	2	.890
Covariate (GPA)			.001**
Error		289	

α = .05

The hypothesis of no signficant difference was retained since the main effect of method of counseling yielded an F value of .566 and was not significant at the .05 probability level with 1 and 289 degrees of freedom. Students' mean scores on feeling of flexibility toward jobs available to them were 2.05 and 2.16 for ECES and Traditional groups respectively.

Table 4.13 contains data which point out, however, that without considering method of counseling or extent of usage of counseling, male and female subjects did express differences in feelings of flexibility toward the number of jobs within their chosen

career fields which they felt would be available to them without additional specialized training. The mean score of 2.20 for males indicated a higher level of flexibility toward the availability of jobs.

Table 4.13

Mean Scores of Flexibility Toward Job Choices for Male versus Female Subjects

Sex	Mean Scores
Males	2.20
Females	2.00

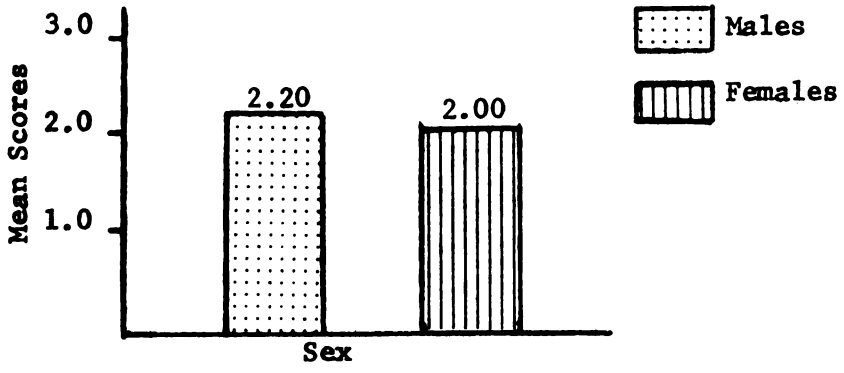

Figure 4.7

Comparison of Male and Female Subjects on Feeling of Flexibility Toward Job Choices

In the analysis of responses on this dimension, it is also noteworthy when students' grade point average was used as a covariate, the difference in flexibility for males and females was significant at a probability level of p - .005.

As evident in Table 4.12 and without considering adjustment introduced for grade point average, this difference in feeling of

flexibility was in favor of male students ($\bar{x}$ = 2.20) when compared with female students ($\bar{x}$ = 2.00).

Summary

Results of Tests of Selct Indices of Effectivenss of ECES versus Traditional Counseling:

In summary, of the effect of counseling method using the indices of effectiveness upon which the above six hypotheses were based, only on certainty concerning career choice did there appear to be significant differences between ECES and Traditional counselees. This difference was in favor of the latter group. However, in relation to two other hypotheses, movement across/within job families as career choices were made and expressed feeling of personal involvement in making their career choices, counseling methods did indicate significant differences in their results when the frequency with which they were used was also considered. Results were in favor of male subjects on the former index. Males also differed significantly from females on the flexibility they expressed toward job choices they felt would be available to them upon completion of their career training.

Table 4.14 and Figure 4.8 provides a summary of these results.

Table 4.14

Summary of Comparison of ECES and Traditional Counseling on Six Select (Hypothesized) Indices of Effectiveness

Indices of Effeciveness	Traditional Mean	Traditional Stan. Dev.	ECES Mean	ECES Stan Dev.	Mean Diff.	Multivariate Test Results F	d.f.	P	Concl. Signif.
H_1 Frequency of Changes in Career Choice	3.33	1.36	3.14	1.31	.19	.732	1 & 293	.482	No
H_2 Certainty Concerning Career Choice	3.53	1.17	3.40	1.18	.13	3.106	1 & 281	.046	Yes*°
H_3 Movement Across/ Within Job Families	1.93	1.08	1.95	1.12	.02	.008	1 & 168	.927	Yes/No**
H_4 Feeling of Personal Involvement with Choice	2.81	.98	2.66	.99	.15	2.050	1 & 254	.107	Yes/No**
H_5 Preference for Method of Counseling	2.93	1.41	2.91	1.31	.02	.280	1 & 280	.840	No
H_6 Feeling of Flexibility Toward Jobs Available	2.16	.97	2.05	.96	.11	.566	1 & 289	.569	No°

* Significant

** Significant only when degree of usage of method is considered

° Grade point average (covariance) significant

$\alpha = .05$

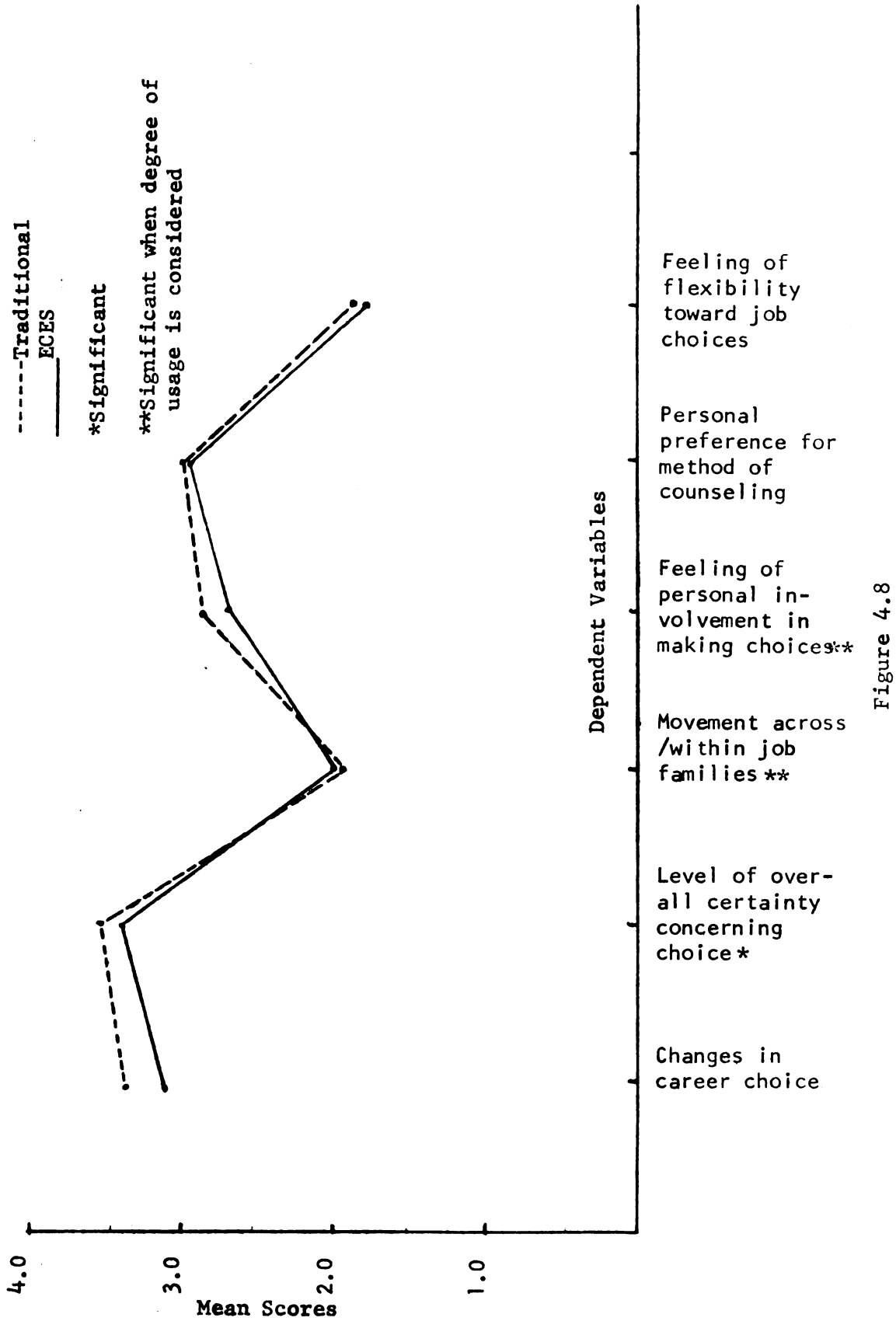

Figure 4.8

Profile of Means on Dependent Variables
Comparing Effectiveness of ECES versus Traditonal Counseling

Section II: Analysis of the Effects as Portrayed in an Overall Evaluation of the Effectivenss of ECES compared with Traditional Counseling Methods:

Thirteen items were used in this portion of the study. They related generally to the success students felt the methods to which they were assigned had in providing information, explaining, and generally helping them with their occupational and educational planning. Four hypotheses along with the results obtained are given below:

H_1: There will be no difference between ECES and Tradition counselees in their overall evaluation of the methods of counseling with which they were provided.

The mean differences obtained by students differentiated only by such assignment and the results of a multivariate analysis of these data, again using grade point average as a covariate measure is given in Table 4.15 with agraphic representation of these results in Figure 4.9.

In particular, students assigned to the two groups differed significantly in evaluating of their respective methods of counseling as more effective in explaining: (a) activities performed; (b) tools used; (c) qualifications necessary for success; (d) education and training needed; (e) chances for employment; (f) salary to expect; and (g) chances for advancement in the occupations they had chosen or wished to choose. The ECES counselees rated the ECES system higher than Traditional counselees rated the counseling they received on five items: explaining activities (mean difference, d = 0.62); tools used (d = 0.63); chances for employment (d = 0.40); chances for

Table 4.15

Summary of Comparison of ECES and Traditional Counseling on Thirteen Indices of Overall Evaluation

Item of Evaluation	ECES Mean	ECES Standard Deviation	Traditional Counseling Mean	Traditional Counseling Standard Deviation	Mean Difference	Multivariate Test Results MS	F.	p	Concluded Significance
Success in Educational Planning	3.59	.98	3.88	1.00	.29	7.417	6.613	.011	No
Success in Occupational Planning	3.51	1.24	3.15	1.06	.36	.803	.588	.444	No
Courses required in Major	3.84	1.23	3.90	1.15	.06	1.775	1.147	.265	No
Subject matter covered by courses in major	3.46	1.28	3.52	1.22	.06	.907	.600	.440	No
Electives for major	3.55	1.37	3.54	1.18	.01	1.219	.762	.380	No
Explaining activities of occupation	3.98	1.69	3.26	1.21	.62	26.723	21.245	.001	Yes
Explaining tools of occupation	3.78	1.19	3.15	1.25	.63	20.448	14.213	.001	Yes
Qualifications for occupation	4.13	1.05	4.71	1.26	.42	25.005	21.215	.001	Yes
Education and training needed	4.19	1.03	4.69	1.23	.58	23.530	20.099	.001	Yes
Chances for employment	3.69	1.18	3.29	1.40	.40	10.992	7.385	.007	Yes
Salary to expect	4.02	1.02	3.06	1.33	.96	52.196	37.686	.001	Yes
Chances for Advancement	3.77	1.20	3.11	1.29	.66	18.238	12.346	.001	Yes
Overall reaction	2.88	.98	2.89	1.00	.01	1.271	1.334	.294	No

$\alpha = .05$

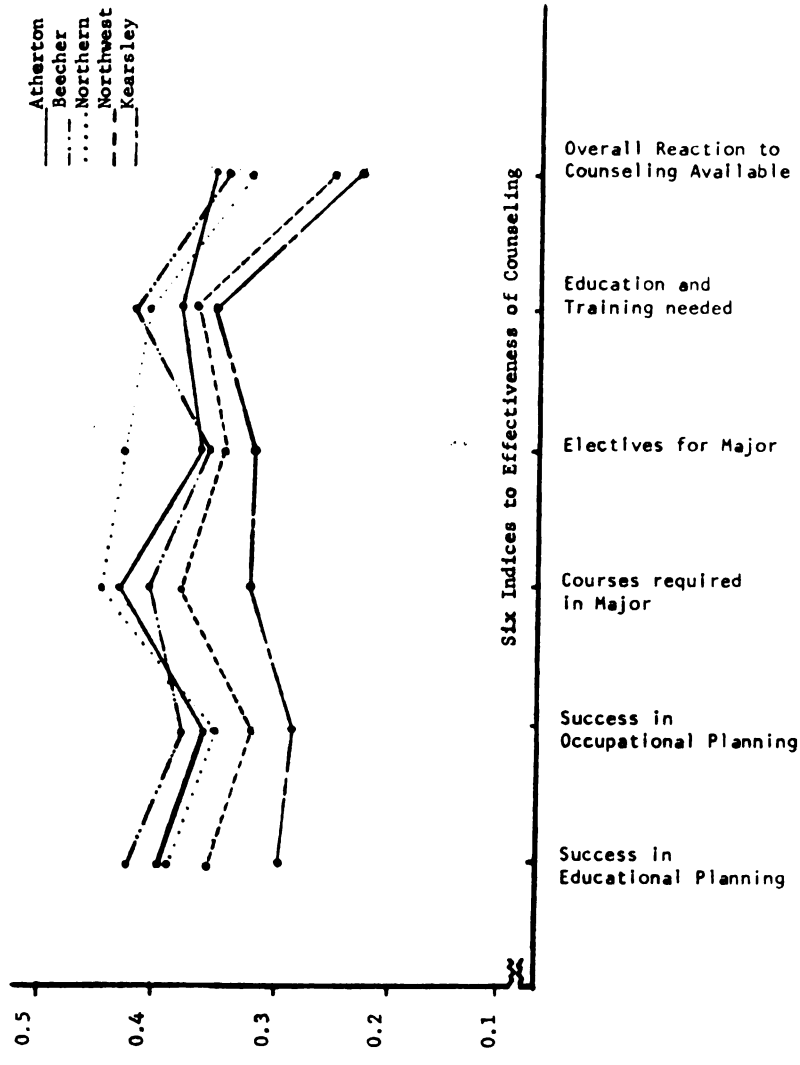

Figure 4.10

Profile Showing Significant Mean Differences Among Schools on Items of Evaluation

advancement (d = 0.66), and salary to expect (d = 0.96). Traditional counseling was rated higher by the counselees than the computerized system on three items: explaining qualifications for success on the job (d = 0.42); education and training needed (d = 0.58), and in educational planning (d = 0.29). These differences, except for success in explaining chances for employment (p=.007) were significant at an alpha level of p = .001. Table 4.15 which presents the multivariate analysis of scores related to overall evaluation of counseling methods also indicates that the F value obtained for counseling was 5.978, which, with 1 and 219 degrees of freedom, was significant at a probability level of .001.

H_2: There will be no difference in overall evaluation of ECES versus Traditional counseling among groups of students from each of the five schools included in the study.

The results of this test are also shown in Table 4.16. The hypothesis of no interaction between and counseling method on overall evaluation was not rejected. The F value of .999 on this interaction of school and counseling method was indicated and with 4 and 219 degrees of freedom, the p value obtained (p = .48) was not significant.

Significant differences were found between schools without regard for the method of counseling. The evaluation of counseling among schools with an F value of 1.596 with 4 and 219 degrees of freedom was significant at a probability level of .006. The "univariate F" analysis showing the evaluation items on which significant differences related to schools were found are given in Table 4.17.

Table 4.16

Multivariate Analysis of Variance of Scores Related to Overall Evaluation of Counseling Methods

Type of Variance Tested	F Test of MANOVA of Counseling Evaluation		
	F	d.f.	Significance Level
C (Counseling Method)	5.978	1	.001**
P (High School Program)	.924	2	.575
R (Racial Identity of School)	1.679	1	.067
S (School)	1.596	4	.006**
CP	1.283	2	.161
CR	.611	1	.844
CS	.999	4	.478
PR	1.411	2	.088
PS	1.036	2	.384
CPR	.621	2	.929
CPS	.839	2	.876
Error		CPS 237	
		CPS 219	

$\alpha = .05$

The comparative mean scores for the 5 schools on these items of overall evaluation of counseling which were found to differ significantly are given in Table 4.18 and Figure 4.10.

In general, students attending Kearsley High School appeared to rate their school much lower on its general success in achieving its goal of helping students plan effectively for their future than did other schools. Northern High School appeared to have, from the result of the student evaluation, a much more successful program

Table 4.17

"Univariate F" Test of Items of Evaluation Showing Significant Differences Related to School

Dependent Variable	Between Mean Squares	Univariate F	Significance Level
Success in Educational Planning	8.867	8.634	.001*
Success in Occupational Planning	4.222	3.147	.015*
Courses Required in Major	7.428	5.587	.001*
Subject Matter Covered by Courses in Major	2.048	1.385	.240
Electives for Major	4.258	2.736	.030*
Explaining Activities of Occupation	1.327	1.086	.364
Explaining Tools of Occupation	2.216	1.565	.185
Qualifications for Occupation	2.573	2.255	.064
Education and Training Needed	2.961	2.575	.039*
Chances for Employment	1.540	1.047	.384
Salary to Expect	2.389	1.688	.154
Chances for Advancement	1.862	1.280	.279
Overall Reaction to Method	6.041	7.330	.001*

$\alpha = .05$

Table 4.18

Table of Means for Indices of Evaluation Which Differed Significantly Among Schools

Dependent Variable	Northern	Northwest	Beecher	Atherton	Kearsley
Success in Educational Planning	3.89	3.58	4.24	3.93	2.90
Success in Occupational Planning	3.59	3.19	3.69	3.53	2.80
Courses Required in Major	4.55	3.87	4.00	4.34	3.17
Electives for Major	4.32	3.34	3.55	3.62	3.12
Education and Training Needed	4.10	3.59	3.96	3.85	3.27
Overall Reaction to Counseling Available	3.18	2.48	3.22	3.27	2.29

than the remaining four. Across all five schools it should, however, be noted that students were least satisfied with the success of the counseling provided them in making occupation plans than they appeared to be with the help provided them in educational planning. Results for items grouped in relation to these two broad areas were also consistent with this overall difference.

H_3: There will be no difference in overall evaluation of ECES versus Traditional counseling in schools with predominantly black enrollment.

This hypothesis of no difference between schools identified by racial enrollment of students was not rejected at the selected

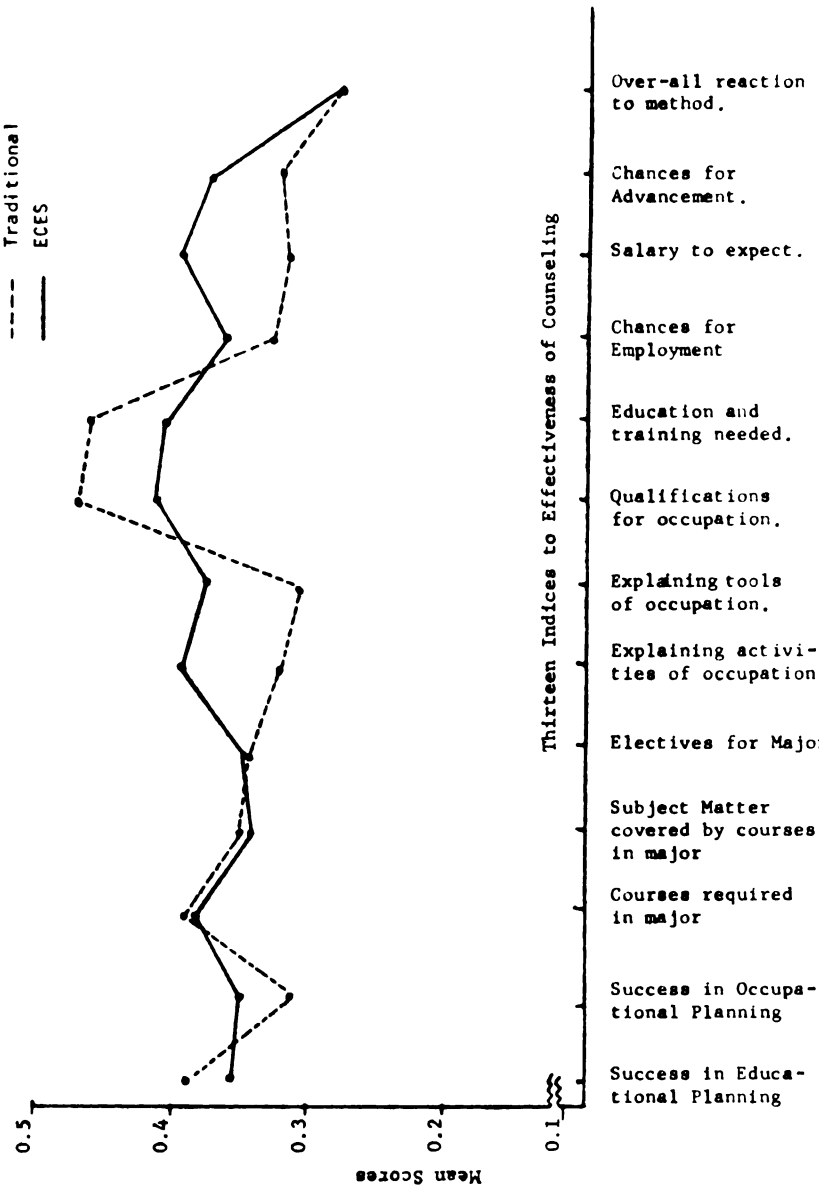

Figure 4.9

Profile of Means on Items of Over-all Evaluation

probability level of .05. In this interaction of racial identification of school and method of counseling, an F value of .661 was obtained, which with 1 and 237 degrees of freedom, indicated an F value of .88 which was below that of the required .05 level of probability.

H_4: There will be no difference in overall evaluation of ECES versus Traditional counseling among students enrolled in high school programs labeled general academic, college preparatory, and vocational.

There was not a statistically significant difference in the evaluation scores of students enrolled in general academic, college preparatory, and vocational high school programs as per their assignment to the two methods of counseling. The results of this interaction of counseling method and school program yielded an F value of .924, which the 2 and 237 degrees of freedom, was not appropriate for rejection of the hypothesis of no difference in student evaluation of counseling methods.

Summary

There were significant differences between opinions of students among the five schools in their overall evaluation of the counseling they received. These differences were most pronounced in effectiveness of counseling provided to explain: (a) activities performed, (b) tools used, (c) qualifications necessary for success, (d) chances for employment, (e) salary to expect, and (f) chances for advancement in the occupations they had chosen or wished to choose. The widest differences appeared to exist between responses for students at Kearsley and Northern High School. These differences were in favor of the Northern High School.

Responses to the evaluative items indicated a lower degree of satisfaction with the counseling provided to them in making occupational plans than that with which they were provided in making their educational plans.

In addition, there were expressed differences between ECES and Traditional counselees in evaluation of the methods they used. ECES appeared to provide more adequate information to students concerning: (a) chances for advancement; (b) salary to expect; (c) the tools of the occupation, (d) chances for employment and activities of the occupation they were considering. Traditional counseling was, on the otherhand, more helpful in explaining: (a) the qualifications necessary for success in the occupation, (b) the education and framework needed, and (c) in educational planning.

Summary of Results

The major findings can be summarized as follows:

There were six selected indices of counseling effectiveness around which six primary hypotheses were constructed. The findings in relation to these were:

1. Only on certainty concerning career choice was there a significant difference between ECES and Traditional counselees. This difference was in favor of the Traditional group.
2. When frequency with which the methods were used was considered two differences were indicated:

a. In relation to instances of movement across/within job families as choices were made, while frequent users of Traditional counseling scored higher than frequent users of ECES, this finding was reversed with decreased frequency in use of both methods of counseling.

b. With usage ranging up to once every six months, Traditional counselees obtained higher scores on expressed feeling of personal involvement in making career choices than did ECES counselees. This finding was reversed with less frequent usage of the methods however.

3. Also in relation to movement, increasingly higher scores received by males despite decreased use of the Traditional method of counseling, while females showed a progressive decrease using the same method. Males using ECES also reported higher scores but this finding was reversed in favor of females with decreased use of ECES.

4. Males also reported higher scores on movement across/within job families as career choices were made. This difference occurred without relation to method of counseling. Instances of movement outside job families occurred for a larger proportion of females than male students.

5. There were no significant differences found between ECES versus Traditional counselees on: (a) the frequency of changes by students in career choice, (b) their expressed

preferences for method of counseling or (c) their feeling of flexibility toward the variety of jobs for which they would be prepared upon completion of training.

6. Without regard for counseling method, students among the 5 schools in the sample differed significantly on the evaluation of the counseling they received in terms of its effectiveness in explaining (a) activities performed; (b) tools used; (c) qualifications necessary for success; (d) chances for employment; (e) salary to expect; and (f) chances for advancement in the occupations they had chosen or wished to choose.
7. Students attending Kearsley High School rated their school much lower on its general success in achieving its goal of helping students plan effectively for their future than did other schools. Northern High School appeared to have, from the results of student evaluations, a more successful counseling program than the other four.
8. Students from all five schools were less satisfied with the success of the counseling provided them in making occupational plans than they appeared to be with the help provided them in their educational planning.
9. ECES counselees indicated a significantly higher degree of satisfaction with the effectiveness of that method in explaining: (a) chances for advancement, (b) salary to expect, (c) the tools of the occupation, (d) the activities of the occupation, and (3) chances for employment.
10. Traditional counseless, rated their method of counseling significantly higher than did ECES users on the success

of the counselor in helping them with planning for their future by: (a) explaining the qualifications necessary for success in the occupation, and (b) education and training needed and (c) generally helping them with their educational planning.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Purpose of the Study

This study was conducted to investigate some potential benefits of the Educational Career Exploration System with high school students from "disadvantaged" home environments. The students were assigned to this method of career guidance and planning as they entered their ninth grade. The group was compared with a comparable group of students from "disadvantaged" home environments who were being guided in their vocational choice and planning by means of the Traditional counselor-counselee approach.

Four areas of importance were reviewed in Chapter II. The first section briefly described theories of vocational choice which exemplify the major orientations - trait and factor approach, the social systems view, and the personality approach, as well as other eclectic points of view. The second section contained discussion of such theoretical considerations which were considered necessary to effective vocational guidance systems as the evaluation of personal potentials, learning decision making, planning in personal career development, learning of the high school level about roles and opportunities for adult activities, and resolving personal problems and problem situations. All these were considerations used in the planning of the Educational Career Exploration System. A brief summary of an evaluation of the San Jose Comprehensive Career Guidance

System provided insight into the use of criterion-referenced measurement techniques in evaluating the effects of such guidance systems designed to aid individual career goal formulation and planning.

The task of the counselor was reported as one with its own inherent difficulties. It becomes even more complicated since the role of counselor has as yet to be adequately defined and accepted by students, administrators, teachers, and parents alike. The problem was even further compounded by the less than optimal preparation of such counselors in an area so important as vocational counseling; as well as the less than optimal counselor-counselee ratio.

Partially reflecting the level of effectivenss of the vocational guidance and counseling provided on the high school level were reported employer complaints concerning the unsuitability of youngsters for the world of work--both in training and in attitudes. Students were reported to tend to express unsuitable vocational choices and complain of their vocational counseling as a largely unfulfilled need.

The problem was found to be long debated and an obvious one. Obtaining sufficient staff with adequate training, interest and orientation to cope with the quantity and quality of changes in the world of work on the one hand, and in student quest and preparation for a place in the future on the other--indeed, to facilitate an integration of the two presents a dilemma of critical proportions. Projects aimed at employing the use of computers have been developed with the supposed aim of helping students learn more about themselves, helping them improve their ability to make wise decisions, and helping them accept responsibility for their own career choices.

Such systems appeared to hold considerable promise toward assisting youth of "disadvantaged" backgrounds as they attempt to make suitable vocational choices and related plans for their future.

To date, however, the findings concerning the effectiveness of computer based vocational guidance systems appeared to be virtually non-existant. This must be understood partially in terms of the recency of the formulations and implementation of such systems. It was not until a research and development program authorized by the Vocational Education Act of 1963 was set up in 1964 that proposals reflected strong interest in developing systems of vocational guidance based on the full use of modern technological resources.

The Educational Career Exploration System received its first field trial in Montclair, New Jersey in 1969. Evaluation procedures which were used have been open to questions of adequacy. This is not to mention the share of administrative difficulties which were encountered.

The present study was warranted partially by the in-house nature of these evaluative efforts of ECES as well as the difficulties of administration encountered on the one hand, and the subsequent almost complete absence of information related to the overall effectiveness of the ECES as a data based vocational counseling system when compared with the Traditional person-to-person method of guidance customarily known in high schools across the country on the other.

Design and Analysis of the Study

Three hundred and forty-six eleventh grade students from three predominantly black (194 students) and two predominantly white (152 students) schools receiving Federal Title III support during the 1971-1972 Fiscal year and located in low-income areas of Flint, Michigan were selected. The ECES computer service was in use in the five schools. One hundred and eighty-eight (90 males and 98 females) of these students were randomly selected from participants in the ECES counseling group and the remaining one hundred fifty-eight (71 males and 87 females) were drawn from the sample of students using the traditional counseling approach. Each student in both groups responded to a questionnaire designed to seek information related to their expressed: (1) stability of decision about a career, (2) feeling of personal involvement in their career decision making, (3) preference for method of counseling, (4) feeling of flexibility toward jobs which would be available within a chosen career field without additional training, (5) instances of movement within versus outside versus both within and ouseide occupational families in the process of making their career choices, and (6) frequency of changes in career choices, and (7) overall evaluation with respect to the effectiveness of the counseling to which they had been assigned.

Frequency of usage of counseling, and sex of students were considered along with method of counseling used in evaluation scores for the six areas. Overall evaluations were considered in light of individual schools, predominant racial composition of schools, and student classification in vocational, general-academic, or college

preparatory courses of study. Grade point average was utilized as a covariate measure throughout the analysis of the data.

Scores on five of the indices of effectiveness and on overall evaluation were analyzed by a series of multivariate analysis of variance procedures. Responses related to instances of movement within as compared with outside of occupational families as choices were made was analyzed by means of a univariate analysis of variance procedure. In all cases, an alpha level of .05 was established as the most appropriate for rejection of the null hypotheses.

Findings

The major findings of the study can be summarized using the following areas as criteria to which differences appear to be significantly associated.

Certainty concerning career choice. 1. Of the six indices of effectiveness selected, only on certainty concerning choices was a significant difference found in the expression of ECES as compared with traditional counselees. The difference here was in favor of the latter group.

Frequency of Usage of Counseling Methods. This factor was found to play an important part in the results obtained on two of the selected indices of effectiveness. 2. In reference to the nature of changes within as compared with outside or a combination of within and outside job families as career choices were made, frequent users of raditional counseling showed less movement outside job families than frequent users of ECES. This finding was reversed but still

showing instances of movement for both groups as less use was made of both methods. 3. Traditional counselees reported significantly high scores than the ECES counselees on their expressed feeling of personal involvement when usage of the counseling averaged once or more every six months. With less frequent usage, however, ECES counselees reported higher scores than Traditional counselees.

Differential effects for males versus female subjects. Male and female student responses indicated differences related to instances of movement as career choices were made in the following manner: 4. Males with less frequent use of the Traditional method of counseling, reported higher scores in relation to movement in career choices, indicating that fewer instances of change outside their selected job families occurred for males. Females, however, using the same counseling method showed a progressive movement to outside areas as frequency of use of the counseling method descresed. Males with less frequent use of ECES also made fewer changes outside job families while females, under similar conditions, indicated more frequent changes to careers outside the realm of previously selected occupational groups. 5. Males also indicated fewer changes to careers outside previously chosen job families than was the case for female students. This was found for subjects assigned to Traditional counseling as well as to ECES counseling.

Overall evaluation of ECES versus Traditional counseling. The two methods of counseling appeared to have differential areas of strength in terms of the information students felt the systems were best able to provide.

6. ECES counselees indicated a significantly higher degree of satisfaction with the effectiveness of that method in explaining (a) chances for advancement, (b) salary to expect, (c) the tools of the occupation, and (d) the activities of the occupation.

7. Traditional counselees, on the other hand, rated their method significantly higher than did ECES on the success of the counselor in helping them with planning for their future by explaining (a) the qualifications necessary for success in the occupation, and (b) education and training needed as well as generally helping them with their educational planning.

Overall evaluation of counseling provided. No significant differences were found among groups of students in different high school programs or in relation to schools with predominantly black versus white student enrollment. Significant differences were indicated among schools however. These were as follows: 8. Without regard for counseling method, significant differences were indicated among students of the five schools in their evaluations of the effectiveness of the counseling available to them in explaining (a) activities performed; (b) tools used; (c) qualifications necessary for success; (d) chances for employment; and (e) changes for advancement in the careers they had chosen. 9. Of the five schools, Kearsley students appeared to report comparatively lower ratings than students from other schools on the counseling provided them in making occupational plans than did students in other schools in the sample.

10. Perhaps a most important difference indicated by students across the five schools evaluating counseling of whatever kind was that they appeared to be less satisfied to a significant degree with the counseling provided them in making occupational plans than they were with the help available to them in their educational planning.

Discussion

Certainty concerning career choice. The hypothesis of no difference between ECES and Traditional counselees on the degree of certainty they felt concerning their chosen careers as being exactly what they want do do in the future was not supported in this study. The analysis indicated that those students who visited with the counselor were more certain in this regard.

It is a popular suggestion that low income blacks, for example, are not positively oriented toward work, but are alienated from it. A number of research findings contradict this notion, however. In a study of the meanings of work among black and white males, Tauskey and Wilson asserted:

> Work estrangement among all status levels is rare indeed and little or no difference exists between the samples of white and black workers. The similarities of work norms between the two groups are exemplified by the fact that 90% of the black workers and 91% of the white workers indicated that, if out of work, they would rather take a job as a car washer than go on welfare even if the pay for the two sources of income were the same.[1]

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[1]C. Tausky and W. J. Wilson, "Work Attachment Among Black Men", Phylon, Vol. 32, (Spring, 1971), pp. 23-30.

These same authors reported that while the black workers were strikingly similar in their desire for work that carries social prestige, an overwhelming majority of both groups want work that is at least respected by the people they know. These results were reinforced by findings from a study of stable working class and middle class black and white men by Kahl and Goering.[2]

That study found a high degree of similarity between blacks and whites on job aspirations and satisfactions, feelings of personal security in employment, as well as certain other work related activities.

The motivation to work is no less among persons from lower income homes than it is for individuals who have grown up under more fortunate circumstances, and it should not be too much to expect that these work related values are transmitted to "disadvantaged" youth in such environments. Indeed, with their hopes well planted, but the reality of their chances for a college education less likely; with families who find themselves unable to provide for their youngsters past an even earlier age; for youngsters from low-income families who often have stronger kinship ties than most youngsters in middle income families[3] (a condition stronger for black than for white families), it is no wonder that "disadvantaged" youth, black or white, necessarily think earlier of what tasks they will perform to provide for themselves (and possibly others) a form of income! Note that this

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[2]J. Kahl and J. M. Goering, "Stable Workers, Black and White", Social Problems, (Winter, 1971), pp. 306-318.

[3]K. Clark, Dark Ghetto, (New York: Harper and Row, 1965).

is not to propose that "disadvantaged" youth engage in choice of a vocational in any of the customarily theorized manners (indeed, I feel that most of them do not). What appears to be the situation is that employment post high school is a necessity for most youth of "disadvantaged" environments. This necessitates early decision making, often about "careers" which make it possible, with limited (if any) training, for early entry. Choosing a career thus becomes an occasion of definiteness for the "disadvantaged" student whether he is assigned to ECES or goes to the counselor.

In another portion of the results, we also find that Traditional counselees rated their method of counseling more advantageous in explaining qualifications--education and training--for occupations while ECES counselees rated that method more informative about tools used, chances for advancement, salary to expect, etc. With the already pre-conceived notions and directed counseling which is often provided "disadvantaged" youth on the one hand, and the urgency or need for closure concerning an occupation on the part of counselees on the other, it is not inconceivable that when such youth engage in the Traditional counseling session, little time is allowed for a thorough consideration of all aspects of his choice, his interests, capabilities, and potential of his choice in terms of future advancement and other related factors.

Indeed, we recall, Theiman, in her survey of views of counselors held by parents and students from low-income areas, revealed vocational considerations sixth among the seven topics

usually talked about in interviews (behavior and other school related problems being usually the topic under discussion).[4] Given this then, it is not unreasonable to suspect that students would, without the aid of counseling, arrive at closure fairly early concerning the occupations in which they will engage. The time taken in the counseling interview thus becomes one, not of exploration related to choice per se, but of exploration related to the most efficient means of reaching that goal--training and entry requirements.

Conversely, the challenge of ECES development was to "create a system which would influence the vocational maturity of its users. This system is thereforeless concerned with occupational choice, and presumed efficiencies thereof--and more concerned with fostering the development of choice making, resource use, and self concept implementation."[5] Thus, the student who sits at the terminal and inputs the possibility of being an accountant is given not only the training and qualifications necessary, but prior to this also must confront numerous other details he should consider with regard to this choice. The added information can do little but retard the ease with which he arrives at a level of absolute or near certainty that this is, in fact, his most appropriate selection. That is to say, the extent of information with which he is provided by ECES differs significantly from that provided by the counselor. As a result, any discussion with the counselor may well serve as an additional

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[4]W. C. Theimer, 'Black Urban Students' Views of Themselves and Their Counselors". (Paper presented at American Personnel and Guidance Annual Convention, New Orleans, Louisiana, 1970).

[5]Myers, Thompson, Lindeman, et. al., Op. Cit., p

seal for his selection while similar engagement with the computer based system may demand further consideration of that same selection.

Frequency of usage of counseling method. Lohnes has recommended that in order for method optimization to take place, the first pre-condition is that the system media allow the student to enter the process of career guidance systems when he wants to.[6] To have the student make an appropriate, satisfying educational or vocational choice seems to be the ultimate goal for a prototype system. The student's motivation to participate in a career guidance system should be voluntary, and depend on initial motivation and the student's sense of need. This climate is likely to bring a strong response. Thus, while the service can be advertised, only the student can schedule his initial venture into a process that depends on the motivational force of this acute awareness of a personal development problem such as vocational choice.

As we consider the differences indicated as a function of usage of the system, this factor of student motivation to arrive at career decisions should be considered.

It is difficult to describe precisely the manner in which students used the ECES during the two years. During much of their first year, students were transported by bus at scheduled times to a central point at which the computer based system was located. As

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[6]P. R. Lohnes, "Learning About Opportunities for Adults Activities and Roles at the College Level", cited in "Computer Assisted Guidance Systems", Department of Health, Education and Welfare, (Washington, D. C.: Government Printing Office, 1969), pp. 16-25.

time went on, however, terminals were placed within individual schools for use by students.

This pre-condition of voluntary entrance and usage of counseling, was one which, except for constraints of scheduling, was allowed for students who visited the school counselor. The question of motivation thus becomes less subtle from this point of view.

The findings indicate less frequent changes to careers outside job families for Traditional counselees who made frequent use of counseling than similar users of ECES. Again, this finding may be cause for many considerations:

1. Students who made frequent use of counseling of any kind were highly motivated toward career planning and vocational choice.
2. Students felt a greater need for frequent consultation with counseling only after they had decided for themselves the careers they wished to enter. Visitation sessions thus were made not so much to explore areas; but to plan procedures for accomplishing career goals.

This latter consideration would indicate that infrequent users of ECES or Traditional counseling were:

1. Less motivated to making even temporary career commitments and/or
2. Engage in counseling for the purpose of exploring multiple career areas which were possibilities for consideration.

Frequent users of Traditional counseling also averaged higher scores related to feelings of personal involvement in making career

choices. This factor may also be explained in terms of the level of motivation which resulted in more frequent use of counseling rather than a reverse condition. That is to say, students who were motivated to make vocational plans, as a component of such motivation were generally more involved in such planning and decision making.

Differential effects for male versus female subjects. Here again the persistent finding was one of greater stability of career choice for males than for females. Males using ECES or Traditional counseling appeared to restrict their choices (even when changes were made over time) to choices within single occupational families. Does this speak to the increased number of possibilities within job families to which males may aspire as compared with those our society has successfully defined within areas as appropriate, or even available to females? This may indeed be the case (though I can think of no such example). What seems to be more persuasive arguments however, are:

1. The pressures for career choice do appear to be more compulsory for males than for females in our society. Be this a legitimate "expectation" or not, males have hitherto and continue to be delegated as "bread-winners", while females have been delegated a different position within the family structure. As a function of such role definition, we find that
2. The pressure thrusted upon males is one for stability within occupations. Our personal experience would remind us of the disdain with which employers consider

"shiftless" work history--both in number and nature of previous employment for males. Women, on the other hand, appear to be less subject to the demands for such commitment to careers.

This latter condition becomes even more complicated for people of low-income stratas--be they black or white. One of the familiar realities for low income black people--"the last hired and the first fired"--has been discussed in depth in a previous section, both their need and desire for job security.

Probably this is not only true for blacks, but that all persons who fall below pre-determined income levels (which vary from one part of this country to another) are equally discriminated against primarily on the basis of such "low income" status. Adding this to the role definitions previously presented, the low-income black or white males do not have available to them the luxury available to low income females or middle and upper income persons to enjoy a great deal of flexibility concerning the occupations in which they wish to engage even when these are, from their personal viewpoints, less than satisfying.

Secondly, in regard to the flexibility allowed females of low-income and minority groups, a third factor must be considered. That is, that the relative competition which tends to exist between middle income individuals, be they male or female, and low-income males is present to a greater degree than that which exists between middle income persons and low income females. Low-income females are thus often "permitted" to enjoy greater opportunity for employment

in situations where low-income males would not enjoy the same welcome. Low-income males thus find it necessary to develop their competencies to a more specialized level, and further, to strive to maintain job permanence at such levels.

Finally, although the present research is limited to a specific sector of the country, some of the findings appear to be diametrically opposed to earlier findings about females. It is imperative to note that in 1968, the annual income necessary for a substandard level of living for an urban family of four was estimated at $6,567, 30 percent of all working women had husbands whose income was between $3,000 and $7,000. Approximately two out of every five workers today are women; 43 percent of women 16 years of age and over are in the labor force and comprise 38 percent of its strength.[7]

According to The Women's Bureau 1972-A, whether they (females) wish to do so or not the majority of women today enter the labor force to support themselves or others. Of the more than 32 million female workers in 1968, about 23 percent were single and 17 percent were widowed, divorced or separated from their husbands. In 1971, over 12 million female workers were of minority races. In 1970, 33 percent of all families headed by women lived in poverty.[8]

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[7]Women's Bureau, 1971, Underutilization of Women Workers, U. S. Department of Labor, (Washington, D. C.: Government Printing Office).

[8]Women's Bureau, 1972 (a), Who Are the Working Mothers, U. S. Department of Labor, (Washington, D. C.: Government Printing Office).

In a current U. S. Government Document on facts about women heads of households the following was reported: Of the 66,676,000 heads of households in 1972, 14,782,000 or 22 percent, were women. The number of women heads has increased by 46 percent in the last decade. The comparable increase among male heads was 17 percent. Among women heads of households, the largest increase (75 percent) was for women 65 years of age and over who were primary individuals and living alone.[9]

Among families of low-income status, there were 6,191,000 families headed by women in 1972, and 2,100,000 or 34 percent had incomes below the low-income level in 1971. The comparable proportion for families with a male head was 7 percent. Among those female-headed families where there were related children under age 18, 45 percent were poor.[10]

Accordingly, Pettigrew laments:

> Once in the labor force it is painfully clear to women at every level of employment, that there are disparities in conditions of employment and renumeration between themselves and men which are patently unjust and intolerable. These disparities are imbedded in the institutionalization policies of sexism, practiced in every phase and form of business, industry and other institutions. One of the sovest disparity hits women in precisely the same spot which men find so delicate--the pocketbook.[11]

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[9] _____, 1973 Facts About Women Heads of Households and Families, U. S. Department of Labor, (Washington, D. C.: Government Printing Office).

[10] Ibid.

[11] Eudora L. Pettigrew, "Women's Liberation and Black Women", (Professor of Urban and Metropolitan Studies in the College of Education and the College of Urban Development, Michigan State University, 1973) (mimeographed).

If there is any ideological commonality among the many and diverse feminists and feminist groups in the movement to change women's status, it centers on two general theoretical issues. The issues are explicated by Freeman as: (1) the feminist perspective of society, and (2) the concept of oppression.[12]

Contrary to the standard view that men and women are basically different and should serve different social functions, play different roles and hold different status, the feminist perspective assumes that women and men are institutionally equal and share most of the same human capabilities.

The concept of oppression has two distinct but interactive factors: the cultural, reflected in the legal, economic, social and political norms and institutions; and the psychological, manifested in behavioral patterns which may reflect such phenomena as prejudice and stereotypical thinking.

He sees female oppression as resulting from the prejudice of sexism which holds that men are inherently more important than women, and that women's natural role is basically that of a menial. Hence, there is a prevailing notion that women should be psychologically, socially and economically dependent on men, and the women's identity is defined by their relationship to men, and their social status determined by the social importance of the man with whom they are affiliated.

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[12]J. Freeman, "Structure and Strategy in the Women's Liberation Movement", Urban and Social Change Review, Vol. 5, (1972), pp. 71-75.

The women's liberation movement not only seeks to eradicate sexist attitudes which allocate female persons to second-class and secondary roles in society, but also endeavors to replace this standard of discrimination with a positive alternative benefiting men and women. What Freeman calls a "feminist humanism" involves two interdependent propositions: First, that the sexes are equal and therefore sex roles must be eliminated; work, in the home or on the job, should no longer be artificially dichotomized into man's and woman's work; there should be no man's and woman's roles; the concept of masculinity and feminity should be extirpated. Second, the content of roles men and women play must be changed. The last proposition is essential if women are to achieve more than equality of rights. Sex role stereotypes should be destroyed and replaced by an ethic in which rights, respect, equality and social justice are not simply male prerogatives, or a white prerogative or Christian prerogative, but human prerogatives for all people.

Overall Evaluation of ECES versus Traditional counseling.

Thompson, Lindeman, Clack and Bohn (1970) reported generally favorable responses by students of ECES in the 1970 Montclair High School field study.[13] These same highly favorable responses were indicated for students responding in the first year (1971) report on the Genessee County Field trial. The authors concluded:

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[13]Thompson, Lindeman, Clack and Bohn, Op. Cit.

> The system was judged to explain ideas, occupations, and majors clearly. The charts were considered helpful. The system was seen as being helpful with educational and occupational planning. The overall reaction was overwhelmingly favorable.[14]

With reference to this issue, the evaluation team for the 1971-1972 Genessee Field Trial concluded "with confidence based on almost totally supportive evidence from Montclair, from Genessee County in the 1970-1971 and again in Genessee in 1971-1972" that "no concern be devoted to this issue."[15]

But lest we forget that ECES in no way represents a replacement for Traditional counselors; and that its purpose should be, at best supplementary, the results of its present comparative evaluation in terms of effectiveness with the Traditional counselor becomes important. In the present study, one finds that ECES received significantly higher ratings than did Traditional counselors across the five schools in the sample in regard to its effectiveness only in explaining activities and tools used in, chances for employment, salary to expect, and chances for advancement in the occupation. Traditional counselors, on the other hand, were considered by the students to be considerably more effective than ECES in helping students with their educational planning--specifically as this relates to explaining the necessary qualifications--education and training needed for chosen occupational fields.

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[14] Ibid.

[15] Myers, Thompson, Lindeman, et. al., Op. Cit.

Upon careful scrutiny, one must necessarily observe the nature of those areas in which the two methods of counseling appear to surpass each other in effectiveness. In retrospect those are two somewhat different and important considerations about choosing vocations. Here, the qualifications and training necessary appear to be the more pertinent information sought in helping arrive at decisions. Salary to expect and chances for advancement may be considered secondary considerations. Students may be or probably are influenced to a lesser degree by tools used in the occupation.

Many different factors may become important to a vocational choice. Look, for example, at Roe's "need fulfillment theory",[16] Segal's use of identification, development of defense mechanisms, and sublimation,[17] Tiedman and O'Hara's process of differentiating ego identity [18]--that is, those major orientations exemplifying trait and factor, social systems and personality approaches or any integration of these three. These different theories about distinctions in effectiveness of the methods in different areas provides a strong basis for explaining why, from the present study, ECES appears to be most effective in providing supplementary information concerning occupations which counselors often overlook, consider less important , or may simply lack up to date information or time

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[16]A. Row, W. D. Hubbard, T. Hutchinson, and T. Bateman, "Studies of Occupational History. Part I: Job Changes and the Classification of Occupations", Journal of Counseling Psychology, (1966), Vol. 13, pp 387-93.

[17]S. J. Segal, "A Psychoanalytic Analysis of Personality Factors in Vocational Choice", Journal of Counseling Psychology, Vol. 8, (1961) pp. 202-210.

[18]D. V. Tiedeman and R. P. O'Hara, "Differentiation and Integration in Career Development", (Cambridge, MA: Harvard Graduate School of Education, 1962).

to impart to their counselees. Traditional counseling on the other hand provided students more adequately with a different type of information necessary for career decision making, i.e., explanation of educational plans, training and qualifications necessary to be successful on jobs.

Overall evaluation of counseling provided. That high school guidance departments may not in fact be staffed by people who have either the knowledge or interest to help students select occupations[19] that guidance and counseling (at least vocational guidance) may yet be the same unfulfilled need of today's students as it was for TALENT Project participants in 1966;[20] and that "disadvantaged" students like those interviewed in the past still express a desire for programs to help them find jobs, develop a self-identity, and provide explanations of the relation of school to careers[21] appears not to have changed to any appreciable degree. The findings of this study indicated that students across the five schools in the sample still view the counseling with which they are provided more successful in helping them make educational than occupational plans for the future.

Some questions necessarily arise:

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[19]G. Venn, "Man, Education and Work", (Washington: American Council on Education, 1964), pp. 36-37.

[20]J. C. Flanagan, "One Year Follow-Up Studies: Project Talent", (University of Pittsburg, 1966), p. 46.

[21]W. C. Theimer, Op. Cit.

1. Are counselors cognizant and supportive of the purpose of education as one which enables the individual to become an effective participant in the diverse patterns of existence in our culture?
2. Do counselors still emerge from their training with a bias toward middle class values of the pursuit of advanced degrees for their own sake, and acquisition of upper level professional qualifications still the most appropriate path beyond high school?
3. Are counselors continuing without adequate knowledge themselves of the relation which exists between school and careers; especially careers which do not have the baccalaureate degree as a prerequisite?
4. Are the myths concerning "disadvantaged" youth and an overall attitude of nonchalance and disrespect concerning their feeling and need for self-expression in careers still not adequately recognized?

Perhaps, some counselors have still not heard the wail of employers concerning their graduates or indeed, have not heard the wail of students themselves concerning more suitable career orientation. Perhaps other counselors have been caught in situation where their job descriptions prevent them from performing according to known "best practices".

Conclusion

Neither Traditional counseling (T.C.) nor Educational Career Exploration (ECES) appeared to be totally adequate in providing vocational guidance and counseling to "disadvantaged" youth in the Genessee Intermediate School District.

Recommendations for Education

It is neither desirable nor practical to speak about career guidance functions becoming the major emphasis of counselor education programs. There are too many counselors and counselor educators working today whose interest, background, and expertise are in other areas. It would be equally unrealistic to propose that all counselor education programs should become concerned about career opportunities for "disadvantaged" students. This too is most unlikely to occur. However, for those career development institutions aspiring to embrace a career guidance and counseling emphasis within the broader framework of career education, and which have committed themselves to trying to better meet the occupational and developmental needs of "disadvantaged" students, several specific suggestions for change in guidance and counselor education programs can be made.

The first recommendation would be to provide within counselor education, information concerning the wide variety of career choices that could be made available to students. This would include detailed study of vocational education programs at the secondary level; detailed study of occupational education programs at the post-high school level, as they exist in community colleges, in private vocational schools, in area vocational schools, in separate technical institutions, and in residential vocational schools. Prospective counselors should become knowledgeable of the nature, advantages, and disadvantages of apprenticeship programs, and of other forms of on-the-job training. They should be knowledgeable of career training opportunities in the armed forces and of other manpower programs such as MDT Programs, WIN, CEP, Peace Corps, and Job Corps.

Today, one may find many practicing guidance and counseling personnel trying to learn much information after they become employed, when instead, they should have acquired knowledge of such information as an integral part of their guidance and counseling preparation.

Nor is this call for emphasis on vocational information one for eliminating acquisition of knowledge concerning counseling in reference to post high school educational opportunities. Rather, my emphasis would be one of helping such guidance personnel understand all possible forms of career development alternatives as differing in kind, rather than in inherent worth so that they are better able to help the counselee decide what is, for him, the most appropriate for his needs.

The second recommendation would require an increase in the study of the nature and methodology of career guidance in career development. Counselors should study the changing nature of the world of work and work values in society, the economics of work, the sociology of work and career development as part of human growth and development. Intensive study of job placement and follow-up procedures would be included. They should be required to have engaged in work experience in areas outside of education prior to entry into counselor education, or in lieu thereof, should be required to obtain such experience prior to completion of their program. They should be required to participate in a career counseling practicum which includes counseling with "disadvantaged" and/or minority persons in a setting where career guidance needs are obvious. Such settings might be inner city high schools, area vocational schools, community agencies, or within business or industrial settings. Such practice should include considerable

counselor exposure to the world of work through a combination of observation, work experience, or work-study experience.

The third recommendation would be the insertion of a body of content in guidance and counselor education which portrays the counselor as an agent of environmental change. This would include making guidance counselors knowledgeable of the environmental handicaps faced by "disadvantaged" persons and feasible alternatives for attempting to help them overcome or eliminate the effects of such handicaps. Complimentary to this knowledge base would be to help counselors become aware of, and accept responsibilities for serving as "change agents" for all facets of the school environment--procedure, school policies, etc. This can best be done by helping them recognize their own strengths and weaknesses, to identify those strengths and weaknesses of other available human resources and recognizing the value of a "we work together" system to produce change. This would necessarily include a body of information on the pervasive nature, recognition, and methods for combating racism in our schools and communities. This emphasis would also include a study of the nature of attitudes and policies which exist in unions, apprenticeship agencies, and employment practices to the perpetuation of "disadvantaged" for youth--by they local, regional, state, or national in kind.

The fourth recommendation would be one of re-orienting counselee assessment tools and procedures so that they are more in line with career guidance and career development concepts. This means teaching prospective guidance and counseling personnel much more about work sample assessment procedures and probably less about paper and pencil standardized tests than is typically done today. There would be a

greater emphasis on performance of all kinds and a reduction in emphasis on psychological testing. There would be an increase in assessment procedures aimed at helping counselors understand the counselee's total sociological background, and a relative reduction in understanding his so-called psyche. This would foster considerable change in student appraisal procedures as these are now typically taught in counselor education programs.

The fifth recommendation, as part of the qualifications of this "new professional;" the counselor would recognize the necessity for joint educational responsibilities with parents, community agencies, and students; when the function of counseling and guidance is received as a "joint venture" among the various community institutions as well as with the family, there is a potential for effective utilization of a systematic, up dated data base as part of the tools to be available. The computer provides one of the yet not fully utilized tools for more effective vocational counseling and career planning. Operationalizing such a project requires knowledge, understanding, and appreciation of the local community as well as acceptance of their participation. The notion of education thus becomes transformed from one of a school function for the community, to one of the now emerging concept--the "educative community." Here teachers, counselors, administrative agencies, State Department of Education personnel and all other representatives of a given community participate actively in the educational and vocational preparation of all "disadvantaged" as well as other youth.

The sixth recommendation is to incorporate within such programs procedures for preparation of support personnel and professional counselors in ways which are consistent with the career ladder concept

and the career guidance team approach. Support specialists could be trained as: (a) career assessment, (b) career information, (c) job development, (d) job placement, and (e) follow-up specialists.

The writer feels that this can be done in less time than is required for the preparation of the professional counselor. To do so in the same institutions and within programs in which professional counselors are being prepared has several advantages. These include:

1. It could increase efficiency by better utilization of guidance and counselor education staff members and facilities.
2. It could provide a smooth and natural means for the specialist to continue his preparation towards becoming a professional counselor.
3. It would provide a natural laboratory for illustrating--to prospective career specialists and counselors alike--the career team concept and ways in which all members of the team could work together.

Implications of Further Research

The present study raises some important questions which are suggested for future research.

1. The ECES computerized system and Traditional counseling appear to proved more effectively for different aspects of counseling. This being the case, further research might well be undertaken to determine:

a. Those areas of counseling where ECES may be most effective and those needs of students which may be more effectively met by use of the Traditional approach.

b. What is the optimal usage (method and frequency) which is necessary if a computerized support system is to result in maximum benefits to students from its location within a school district?

In addition, the following questions may also be explored.

c. In what manner may classroom teachers be most appropriately used in an auxilliary role in relation to computerized counseling procedures.

d. Is a computerized support method of counseling more appropriate for use with students with certain characteristics (e.g. of higher vs. middle vs. lower socio-economic backgrounds; intellectually gifted vs. average vs. less intellectually gifted; students enrolled in college preparatory vs. general academic vs. vocational school program), and

e. Using a review of the literature concerning the theoretical bases of vocation guidance systems are existing systems truly reflective of these theoretical bases in this data based content and the manner in which they are used?

Author's Impressions

A feeling of exigency on the part of this researcher concerning the overall operation of the ECES project in the Genessee County Schools

resulted in separate interviews with three counselors, ten students, and five parents from schools in which data were collected for this study. These interviewees expressed in vigorous terms an evaluation which reflected misuse of testing materials, changes made in the memory banks of the computer to reduce costs of the system for student use, and some feeling that a general opinion appeared to exist which would make it possible for only the best students to utilize the ECES approach to counseling. These and similar complaints were apparently the source of discontent with the ECES project.

The understanding appeared to be that the Career Development Inventory (CDI) was a modified version of the Ohio Vocational Inventory Scale (OVIS); and was used as a determiner of which student used ECES and which student did not. From this CDI, a raw score was obtained from which a revised grade point average evolved. This new grade point average apparently considered present grade point, interest, etc. The new grade point average replaced the student's actual high school average. This procedure was viewed by many students as negative, since, as they perceived it, they were "cheated of the benefit of possibly a new outlook on life".

For example, if a student had a 3.0 average and wanted to be an engineer, the ECES would facilitate the students ambitions by providing very positive feedback if the requirements of the high school curricula were in harmony with the requirements for the job as stored in the computer. With use of the CDI, however, when the same student now failed to have a high enough revised average conditions were different. Still aspiring to be an engineer, the answers now prescribed by ECES could only result in the student's grief!

The counselors contended that the computer provided vocational, occupational, and career information to students based exclusively on their names, student identification number, and the actual or true high school grade point average of such students. Further, and instead of following the original plans, counselors stated that the "administration" had indicated that if ECES is used by "better" students, a test will be developed which will put the project "in its proper perspective".

The counselors, students, and parents further elaborated that terminals accomodating students in schools with predominantly black enrollments in the "inner city" were mechanically non-functional for months at a time. The net result was further discontent with the system.

Evidence of students' dissatisfaction with revised grade point averages is further substantiated by comments which they wrote on the questionnaires. These comments were ones such as "my high school grade point average is 2.75, but the computer says its 1.5".

Upon announcing his intentions to conduct this study relative to the use of ECES in September, 1971, the researcher met with a great deal of enthusiasm on the part of the Director of Vocational Education (See Appendix D). As time progressed however, the investigation appeared to be a less welcome one.

These findings are aired because the writer feels and hopes someone will take issue with such occurrences. Every student does, in fact, have a right to be someone. Although a student may be "disadvantaged" in the tenth or eleventh grade and may read at what is considered a seventh grade level, and supposedly thinks little of himself, this is no reason to use sophisticated machines designed

to provide guidance for the self perpetuation but instead, it provides disgust and dissatisfaction in a manner similar to that provided by human elements in his environment.

It has been said that "to be young and 'disadvantaged' in this country is to by angry at all times". To be Black, educated, and returning to a system of this kind is to be no less furious at the indignities endured by "disadvantaged" children on a daily basis. School systems around the country, particularly in such cities as Detroit, Flint, Chicago, and New York are responsible for destroying children and their parents by twisting and crippling their self-images. Schools have established criteria for judging young people that are racist and unrelated to children's intelligence. Acting as a tool of a racist society, schools are undermining attempts made by researchers such as those of I.M.B. to produce feasible methods by which to help maintain pride and motivation in a people hampered by a history of deprivation, drugs, slavery, and institutionalized oppression.

Teachers, counselors, and administrators in the Flint school system are destroying the life chances of this segment of the school population. In essence, they have programmed a machine to infer to students that they are "dumb". The mere power of suggestions of such coming from a computer could well make a student think "maybe I am dumb," and the writer knows that somewhere through the student's career he has heard the term leveled at him!

The counselor, whose way of looking at a child transmits to that child a negative judgment which he accepts as violent, and/or the teacher or counselor who shies away from touching a child, leading

him to think he is not worthy of being touched, is hurting that child more than can fist fights, tire irons, bike chains, or wooden paddles. Inner city school personnel indulge in these criminal practices daily and are not held accountable. They participate in and draw their livelihoods from school systems which support such violence. Schools use violence as their contribution to maintaining racist institutions. The violence is directed toward black and poor white and minority children to "keep them in their place"--to keep them as the unemployed, the shoe shiners, the ditch diggers, and the dish washers of the society.

The entire concept of school is used in deprived areas of inner city schools to make poor young people feel inferior. Educator Ivan Illich writes:

> Schools instruct (the poor) in their own inferiority through the tax collector who makes them pay for it, or through the demagogues who raise their expectations of it, or through their children, once the latter are hooked on it. So the poor are robbed of their self-respect by subscribing to a creed that grants salvation only through the school. At least the church gives them a chance to repent at the hour of death. Schools leave them with the expectation (a counterfeit hope) that their grandchildren will make it.[22]

And while subduing the poor with the false hope that their grandchildren will succeed, counselors make sure that these grandchildren never do. Not only will they not make it, but they will blame themselves for not succeeding. Schools do this by destroying positive self images in disadvantaged students.

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[22]Ivan Illich, De-Schooling Society, (New York: Harper and Row, 1971), pp. 29-30.

The right to an education is often spoken of by judges in law suits in which a Board of Education is involved, both in federal and in state courts. The strongest statement was made by the Supreme Court of the United States in the Brown vs. Board of Education of Topeka case. It stated:

> In these days, it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity to an education. Such an opportunity, where the state has undertaken to provide it, is a right which must be made available to all on equal terms.[23]

The right to an education seems fairly entrenched in the law. Institutional and individual racism is also firmly entrenched in the law, however, and has denied many disadvantaged children the right to be educated.

The "disadvantaged" child has dared call attention to the Emperor's clothes by asking, "What's really in education for me?", In a counterpoint of innocence, and defiance, writes Fantini:

> . . . the ghetto student declares that school is phony, that teachers (including counselors) do not talk like real people, that his reality as pointed out by the language of the school are as night and day. In questioning whether the school has much intrinsic meaning, he has become the spokesman for the middle class child as well.[24]

What educational institutions do now, in rough outline, is according to Seeley, to:

> . . . to take the (disadvantaged) child- warm, living flesh and spirit in the kindergarten and nursery school - and turn him into sinew, skeleton, scar tissue, at the high school, college, or graduate school exit.

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[23]347 U.S. 483, 493, 74 Supreme Court 686, 691 (1954).

[24]M. D. Fantini and Gerald Weinstein, "Taking Advantage of the Disadvantaged, Teachers College Record, Vol. 69, (November, 1967), p. 105.

> He comes full of life and leaves full of schemes. He comes open and leaves closed. He comes in sensitive self-awareness and goes clad in armor. He comes singing, skipping, and dancing and leaves carrying himself, presenting himself, 'using himself', posturing. He comes to give and receive; he leaves to trade at the door of life. Not out of some inherent necessity of growing up--indeed, this is growing down--but out of the very structure and content of education designed to that end. And rightly so, for what we have needed hitherto were not human beings but skilled ants, and the institutions appropriate to their production, Our school and colleges, have been and are, mostly ant hills.[25]

But if thinking then, can be viewed as the purposeful definitions of feeling, what feelings are children to derive in schools? Have we really given this the thought it merits? We pride ourselves on the fact that we can make machines that think like human beings and overlook the fact that we have made millions of human beings who think like machines. So that social change may be sound, so that human change will be sound, we need to teach the young how to think critically, creatively, originally, imaginatively, and daringly. As one author puts it:

> Indispensable as it is, the ability to think soundly is not enough. Man is not alone a thinking creature, he is also a feeling creature. Just as he has to be taught how to think, so too he has to be taught how to feel.[26]

Finally, this writer has attempted to conduct research which represents an accurate and precise evaluation of the ECES Project. He would also hope that more extensive research will be conducted

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[25]J. Seeley, The Americanization of the Unconscious, (New York: International Science Press, 1967), pp. 292-293.

[26]Ashley Montagu, "To Think and to Feel", in Introduction to Education: A Comparative Analysis, Donald K. Adams, ed. (Belmont, California: Wadsworth Publishing Company, Inc.), pp. 13-14.

in inner city schools which make the many inadequacies which portray the miseducation of "disadvantaged" children public knowledge. In the end maybe, just maybe, educators will come to grips with social realities, and will make a conscious effort to render the education of "disadvantaged" children in this country as it should be.

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APPENDICES

APPENDIX A

A Description of the Genessee Intermediate School District Computer Based Educational and Career Exploration System

A DESCRIPTION OF THE GENESSEE INTERMEDIATE SCHOOL DISTRICT COMPUTER BASED EDUCATIONAL AND CAREER EDUCATION SYSTEM

Historical Background

In January of 1966, Frank J. Minor and others started to develop the ECES system. After three years of work the first version was completed and submitted to a field test in Montclair, New Jersey High School. The first year was spent planning the system functions to be performed, deciding upon the content to be stored in the information banks, designing the user strategy, and the allocation of roles between the client, the counselor, and the computer. The second year was spent building and pilot testing a variety of prototype versions. Based upon what was learned in these pilot tests, a detailed set of system specifications was decided upon. In the third year a complete system was built to the revised specifications. The system passed through a field test in Montclair High School in New Jersey in the spring semester of 1969.[1]

On the basis of the field test findings in Montclair High School, improvements were made in the ECES System. Plans were made to field test the revised system in the Genessee Intermediate School District in Flint, Michigan. The field test started in January, 1971 and serves six high schools intensively along with seven other schools in the

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[1]Frank J. Minor, Third Symposium for Systems Under Development for Vocational Guidance. IBM, Advance Systems Development Division, (Yorktown Heights, New York, September, 1967).

District. A total of approximately 2,000 students are involved. The system was designed for the Genessee comprehensive career development project by IBM.

A Description of ECES

This chapter describes the Educational and Career Exploration System (ECES) in terms of its rationale, assumption, and objectives. To make the operation of the system understandable, there will be a brief description of the equipment used in the system, followed by a discussion of the phases and routine available to the student who participates in ECES.

Rationale. The need for an educational and career exploration system is perhaps best seen within a general framework of vocational development. A person's vocational development is a process which extends throughout his life and which can be thought of as being divided into relatively consistent stages. Vocational development stages have been defined as growth, exploration, establishment, maintenance, and decline.[2]

The exploration stage of vocational development usually begins around age 12 and extends until about age 20. During this stage, the individual makes important educational and occupational decisions. In high school, the choice of curricula has implications for later opportunities; in college, the choice of the school and the major area of study effects later occupational performance. During the exploration

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[2]D. E. Super, The Psychology of Careers, (New York: Harper and Row Publishers, Inc., 1957).

stage an individual needs information about himself and about the world, new information and new experiences which the person can incorporate and make use of in-current decisions and future plans.

Vocational counseling and guidance can provide some of this information and some of the exploratory experiences. Individual vocational counseling usually is an information-process involving two people, the counselor and the counselee. However, the computer has characteristics which can be used to advantage as a third element in this information-processing. The computer has capacities to record, store, and recall large amounts of information quickly and accurately. Advances in computer technology and time-sharing have made the use of expensive equipment economically feasible, and the development of conversational modes of interaction with the computer has made computers even more adaptable to the field of counseling and guidance.

Besides being technically feasible, the need for such assistance is clearly seen in the field. Educational orientation and occupational orientation and information are frequently neglected in the guidance services. It is difficult or even impossible for a counselor to remain adequately informed about educational opportunities, job requirements and the labor market. There are also real limitations on the amount of information that can be transmitted and on the number of exploratory experiences a counselee can have in the traditional face-to-face counseling setting. Finally, the demands on counselor time does not permit extensive time for planning and providing for exploratory experiences, and for evaluating the effects of these experiences.

Assumptions

The nature of vocational guidance and the ways in which a computer-assisted system could contribute to guidance were taken into account in the development of ECES. The main assumptions underlying ECES have been described briefly in an article by Minor, Myers, and Super.[3]

First, the system should be appropriate for individuals who are in the exploratory phase of vocational development and are from varying socio-economic backgrounds. The target population selected was therefore persons in grades 8 through 12. In order to cover a wide range of socio-economic types, the system was explicitly designed for persons who planned to enter the labor market directly after high school as well as for individuals who planned to enter formal post-high school training, whether in technical or in vocational school, junior colleges, or in the universities. It was assumed then, that the system would serve the majority of persons in the exploratory phase of vocational development, regardless of their educational or vocational aspirations.

Secondly, the system should be largely under the control of the student, i.e., the student should have options available to him by which he can determine the direction of exploration and sequence to be followed. Learning to deal with these kinds of options and these kinds

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[3]F. J. Minor, R. A. Myers, and D. E. Super, " An Experimental Computer-Based Educational and Occupational Orientation System for Counseling", Personnel and Guidance Journal, Vol. 47, (1969), pp. 564-569.

of responsibilities can provide an experience worth something in itself, in addition to the information which the student may gain in the process.

Thirdly, the student and the system should be able to relate in a conversational mode, i.e., the student should be able to enter as well as receive information from the computer-based system in and interactive mode. This type of approach would be compatible with guidance programs as they are currently established.

Finally, the system should accomodate individual differences in readiness to participate in such an experience. Particularly in the junior and senior high school years, when students are characteristically at different levels of physical, intellectual, and social maturity, a system to be used by students in all of these grades would have to provide more than one operation. With the help of counselors, the original plan was for the student and the counselor to determine at what point it would be most advantageous for the student to begin.

Objectives

ECES was designed to be integrated with existing guidance systems in schools and agencies. Its major objectives were designed to supplement and reinforce guidance and counseling programs and can be summarized as follows:

For the student. There were three main objectives in regard to the students. First, it was hoped that the system would increase the person's knowledge about himself in relation to the world of work. This would be achieved through the presentation of data about himself which has been generated in his school performance on standardized objective tests, and his expressions of his interests and preferences.

For information about the outside world, data from standard sources such as the Dictionary of Occupational Titles would be available. This understanding of himself and the world of work could help the student become aware of his multipotentiality and broaden his occupational horizons.

Secondly, there was the objective of permitting the student to explore some of the implications of his educational preferences. Educational or curriculum perferences are related to future career behavior, and the occupations chosen are often the outcome of the curricular choices. On the system, the student could learn about high school and college courses and their occupational potential.

The third objective was to provide a system which would facilitate the complicated process of selection of an institution of higher education. By comparing and contrasting institutions along meaningful dimensions such as location, course offered, and cost, the student with the help of his parents and the counselor would be able to make a more informed decision about post-high school training.

For the counselor. It was hoped that the system would have two main effects on the job of the counselor. First, with an information-processing system available to the student, the student could directly relate to the system and could increase his own fund of information, raising his level of understanding of the process of choosing and preparing for a career. Thus, the counselor would be able to begin working with students at a higher level of problem solving, effectively reducing some of the time-consuming preliminaries which can be handled by instruction from a computer system.

A second and very real saving for the counselor would be the system's capability to serve as a comprehensive, up-to-date library, easily accessible to the student. This would free the counselor from some of the clerical and more routine sorts of detail work involved in maintaining such a facility.

ECES Components and Their Uses

In order to understand the ECES program and its functioning, there is a need for a brief description of the equipment and configuration of the components in the system. Exhibit 1 shows a student using the system.

Equipment. The equipment used in ECES consists of two main components: (1) an IBM S/360 computer located at an IBM site, and (2) terminals which can be installed locally. These terminals are connected to the computer by means of telephone lines and consist of the following elements:

1. Film Image Display Units. Under computer control, this unit projects information from a 100 frame film strip which is loaded into the terminal by the student. The student responds to the information; this response is interpreted by the computer which directs the presentation of the next appropriate frame. This type of display unit was selected because of the quality of the pictures and the greater convenience of film strips compared with slides. (See Exhibit 1).

Exhibit I A Schematic Illustration of the Educational and Career Exploration System (ECES)

Components: Film image display unit, numeric keyboard, and typewriter printer.

2. A Numeric Keyboard. On this keyboard, the student responds to the information and questions presented by the system. Much of the information is presented in a form which requests a response in a multiple-choice format. In working with the film image display unit, the student responds on the keyboard, and the computer then directs the showing of the next appropriate frame. A numeric keyboard was used because of its adequacy and simplicity: this keyboard could provide enough options without being unnecessarily complicated.
3. A Typewriter Printer. The printer prepares messages based on the sutdent's current keyboard responses, his past responses, and the profiles from his school and test performance. These messages, consisting largely of narrative and interpretive charts, are taken by the student for his later review, by himself or with his parents, counselors or others. See Exhibit 2 for parts of a sample printout.

Typewriter messages were chosen because they are easy to read does not take long to produce, and are permanent, suitable for later review. In contrast, audio messages, while more personalized, are transient and difficult to analyze for content.

The Reference Guide is a student manual which provides a general orientation to the system in addition to a complete listing of the occupations, schools, and major covered by ECES. Reference guides are placed at each terminal and are made available for students to take with them when they leave the ECES site.

Exhibit II Sample Part of Student Printout

SUMMARY CHART

AREAS IN WHICH YOU AND THE TESTS 'AGREED'

	Estimate
Learning Ability:	Middle Third
Interests:	
Outdoor	Lower Third
Technology	Lower Third
Arts and Entertainment	Middle Third

AREAS IN WHICH YOU AND THE TESTS 'DISAGREED'

	Your Estimate	Test Estimate
Interests:		
Scientific	Upper Third	Lower Third
Social Service	Middle Third	Upper Third
Business Contact	Lower Third	Upper Third
Business Organization	Upper Third	Middle Third
General Culture	Lower Third	Upper Third

Use of System

The system is divided into three main phases, with a computer-based information bank associated with each of these sections. These sections are: (1) Introduction and Phase I: Vocational Orientation, (2) Phase II: Educational Orientation, and (3) Phase III: Post-High School Educational Search.

Introduction and Phase I: Vocational Orientation. At the beginning of the student's interaction with the ECES, the general framework of the system and its logic are explained by a monitor. For each student a student profile based on his performance in school and on standardized objective tests has already been entered into the data bank. As part of the introduction, the student enters his own self-estimates of his learning ability, vocational interests, and his expected level of educational achievement. The profile based on school records and test performance then is compared, by the computer with the student's estimates, and the agreements and discrepancies are presented to the student. In the case of some discrepancies, it is suggested that the student see his counselor and discuss these differences. This comparison is the first of numerous charts and printouts available to the students.

After the introduction, Phase I of the system includes occupational information which the student may use in the processes of browsing, exploration and clarification. The system provides a framework for organizaing occupations, the opportunity to explore tentative career preferences, and the chance to pursue clarification by detailed analysis of specific occupations.

The World of Work. To provide a way of organizing the vast amounts of occupational information available, the world of work was divided into four levels of educational requirements and eight major fields of activity. This 4 by 8 system, adapted from Roe, arranged occupations according to similarity in the primary foci of activity in the jobs.[4] Examples of occupational fields are Business Organization, Technology, and Service. The educational levels are not presented with specific definitions; instead, education is described in a range from "some" to "more". This was done so that students would not initially be discouraged from considering occupations at higher levels of education.

Exploring Tentative Career Preferences. After mastering the basic concepts of level and field as they apply to the world of work, the student may then proceed to browse and explore occupations in the system. "Browse" refers to the process by which the student indicates his preferences for kinds of work activities, work conditions, and educational aspirations. From his answers to questions in these areas, the computer provides a list and brief descriptions of occupations compatible with his preferences. The student is able to enlarge or restrict the number of occupations presented to him in his browsing activity. He may repeat the procedure as often as he chooses to, and upon wishing to leave the browse routine, the system provides summary information. The summary includes: (1) a comparison of these occupations with data from his school and his self-estimate profile, and (2) the names of occupational fields which are compatible with his school profile and his self-estimate profile, but which he did not list in his own tentative career preferences.

Exploring tentative career preferences can serve two important functions: it can point up inconsistencies among the student's preferences, aspirations, and profiles; secondly, it can broaden the student's horizons of possible relevant occupations which may not have occurred to the student. Exploring tentative career preferences leads naturally to the next step in Phase I.

Clarification by Detailed Analysis of Specific Occupations. Browsing is the initial looking over the occupation world; clarification is a more detailed investigation of those occupations which seem to warrant further study. From the occupations tentatively considered during browsing, the student usually narrows his range and decides to explore a number of specific occupations more deeply. On considering these occupations, and issue is whether or not the occupations and the individual have characteristics which are compatible. This is determined by examining what the person sees his own characteristics to be, what the characteristics of workers in that occupation really are, and what his reaction to certain aspects of the job are. To clarify reactions to the occupations, these elements of a job are considered: duties performed, training requirements, employment environment, competition, career growth potential, salary, creativity opportunities, degree of difficulty and variety of tasks, and method of entry.

One way in which the student is made acquainted with the nature of the work of a particular occupation is through a work-sample, in the

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[4]A. Roe, The Psychology of Occupations, (New York: John Wiley and Sons, Inc., 1956).

form of a games-playing task. As shown in Exhibit 3, the student is presented with brief problem-solving situations relevant to the occupation; in this situation the student gets a hint of the activity involved in that occupation. The situation is not a test, so the subject does not feel judged by his performance on the task. If he wishes to consider other topics of information listed as available, he may so request. In selecting topics, the student is also made aware of some of the linkages between topics, such as between "advancement opportunities" and "educational requirements".

Proceeding from one topic to another, the system records the students' responses and relates them to the previous information from his school profile and self-estimates. This is designed to personalize the system for each individual user, thus helping him interpret the data in the light of his own unique situation. This process of comparing and relating information from different sources can be illustrated by considering the example of a student who requests information about worker requirements or training requirements of a given occupation being considered.

Before providing such information, the system asks the student to give his impressions of the requirements of the occupation. His answers are compared with the actual requirements and with his earlier statements about his estimated learning ability and his educational goals. The student is asked whether or not he feels the requirements are possible in light of his own answers, and whether or not he would be willing or able to complete the requirements. If the student says that he cannot, the system inquires as to the reason, and in cases where it is feasible, the system helps the student check the

Exhibit III

An Example of a Problem-Solving Situation Relevant to an Occupation

Your are an accountant who, among other tasks, prepares income tax returns. A widow comes to seek your professional assistance. Which of the following sources of income is not taxable?

1. Earnings from part-time job
2. Dividends from investments
3. Social Security benefits
4. Sale of family heirloom jewelry

If 3... Right! Social Security benefits are exempt from taxation if the earnings do not exceed $1680 a year. Earnings, dividends and sale of private property are all taxable.

If 1,2,4...No, you've guessed wrong. Earnings, dividends and sale of private property are all taxable.

It is her Social Security benefits that are not taxable if her earnings are less than $1680 a year.

accuracy of his opinions. Where possible, the system suggests alternative routes to reaching the same goal, e.g., suggesting on-the-job training if formal education does not seem appropriate. Exhibit 4 shows some alternatives in such an interchange.

The system records the student's responses during this consideration of occupations in detail, and when the student completes his clarification sequence with a particular occupation, a printout report is prepared by the system. These reports are of two kinds. First, a narrative report is the simple record of the students progress through his exploration of the occupation; this is provided so that the student can review it at a later time. (See Exhibit IV & V). The second type of report is an interpretive report which checks the logic and consistency of the student's answers and progress. For example, the student's answers may be inconsistent if at one time he says that he likes a certain kind of work activity, but when asked in regard to a specific occupation, he states that he does not like that activity. Another example might be the student who has high educational goals, but who states that he does not believe that he has the ability to master the educational requirements of an occupation with minimal educational hurdles. This interpretive report can be used by the student and by the counselor in later discussions of the student's plans.

After completing the desired activities of Phase I: Vocational Orientation, the student may go directly to Phase III: Post-High Educational Search. However, if the student is concerned about his high school curricular decisions or major areas of study in post-high

DO YOU WISH TO CONTINUE USING CHART 80? (Answer on your screen as usual.)
1. Yes
2. No

(This summary is based on analysis of the last 10 occupations you explored and said you liked or were not sure abou

KEY: cs = consistent ic = inconsistent na = not available
OK = favorable XX = unfavorable ?? = uncertain
ns = not sure

ANALYSIS AREA	OCCUPATIONS EXPLORED									
	7110	7110	7110	6121	3342	6121	1117	1118	1119	8204
1. Did you like the occupation?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Comparison of the above response to your responses in the following areas:										
ACTIVITIES LIKED?	some	some	some	some	some	some	some	some	some	some
*********COMPARISONS =	cs	cs	cs	cs	cs	cs	cs	cs	cs	cs
Where Employed Liked?	none	some	some	some	some	some	some	some	some	some
*********COMPARISONS =	ic	cs	cs	cs	cs	cs	cs	cs	cs	cs
Working Conditions Liked?	yes	yes	yes	yes	yes	yes	yes	yes	yes	no
*********COMPARISONS =	cs	cs	cs	cs	cs	cs	cs	cs	cs	ic
Personal Qualifications Met?	yes	yes	yes	yes	yes	yes	yes	yes	yes	no
*********COMPARISONS =	cs	cs	cs	cs	cs	cs	cs	cs	cs	ic
Earnings Liked?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
*********COMPARISONS =	cs	cs	cs	cs	cs	cs	cs	cs	cs	cs
2. Comparison of the field each occupation with your interest self estimates: Field =	GenCl	GenCl	GenCl	Scien	BuOrg	Scien	Srve	Srve	Srve	Arts
your estimates (in thirds) =	lower	lower	lower	top	lower	top	mid	mid	mid	lowe
*********COMPARISONS =	ic	ic	ic	cs	ic	cs	ic	ic	ic	ic

		7110	7110	7110	6121	3343	6131	1117	1118	1119	8204
3. Comparison of the level of each occupation with your ability measures:											
Can you meet educational requirments? (Your responses)	=	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Your self estimate of ability is in the MIDDLE THIRD.											
********COMPARISONS	=	cs	cs	cs	cs	cs	cs	cs	cs	cs	cs
Your general learning test score is 2.7.											
********COMPARISONS	=	cs	cs	cs	cs	cs	cs	cs	cs	cs	cs
Your grade point average is 1.1.											
********COMPARISONS	=	ic	ic	ic	ic	cs	ic	ic	ic	ic	cs
4. Overall Outlook		XX	OK	OK	OK	OK	OK	OK	OK	OK	XX

* * * * * * * * * * End Chart 80 * * * * * * * * *

Because your work value self-estimates were used in the analysis of your explorations but have not been listed above, you might want to review them. If so, work value estimates are provided by chart 93.

You may continue to explore ECES by going anywhere you like.
Look at your screen.

Now you may look at an occupation, a major or a chart.
Turn to your reference material if you need help deciding WHERE TO GO NOW.

SAMPLE PRINTOUT OF A CHART

****** CHART 80 * * * * * * * * * * * * * Exhibit IV

TOTAL SUMMARY EXPLORATION

In order of apparent importance based on your explorations, your strongest fields of interest seem to be:

FIELD NO., NAME	ANALYSIS SCORE
6 Science	(12)
1 Service	(10)
7 General Culture	(9)
8 Arts, Entertainment and Recreation	(3)
3 Business Organization	(3)
5 Outdoor	(1)
4 Technology	(0)
2 Business Contact	(0)

Your strongest preferences for level in order of importance seem to be:

	ANALYSIS SCORE
Level 1	(51)
Level 3	(31)
Level 2	(27)
Level 4	(11)

Based on an analysis of your explorations, your occupational preferences--in order of importance--seem to be:

CODE	OCCUPATION NAME	ANALYSIS SCORE
3342	LEGAL SECRETARY	(35)
1119	THERAPIST SPEECH	(26)
1118	THERAPIST PHYSICAL	(26)
1117	THERAPIST OCCUPATIONAL	(26)
6121	NURSE PROFESSIONAL	(26)
7110	GUIDANCE COUNSELOR	(26)
7110	GUIDANCE COUNSELOR	(26)
8204	ANNOUNCER RADIO AND TV	(25)
7110	GUIDANCE COUNSELOR	(23)

The first part of chart 80 is finished. The last part provides a detailed summary and analysis of the occupations you explored most recently. You are being given the option to skip the remainder of chart 80.

school formal education, he would move to Phase II: Educational Orientation.

Phase II: Educational Orientation. This phase of the system appropriate for the student who plans to continue his formal education beyond high school. This section can be useful to students who have no vocational goals expressed in terms of tentative occupational choice, students who express their goals more adequately in terms of curricular preferences, or for students who are interested in the particular occupational implications of curricular choices.

The student becomes acquainted with areas of study found in instructional programs in junior colleges, technical schools, vocational schools, or four-year colleges or universities. (See Exhibit VI for Sample Chart of "Exploring Majors") from the areas of study available, the student names the ones which appeal to him. From this input, the system expands the areas which might be considered and relates these choices to their occupational implications. This is done by: (1) suggesting other areas of study which are compatible with the student's interests and with the areas he has already mentioned; and (2) informing the student of the occupations which are usually entered by individuals who have chosen the majors he has suggested.

Following his experience with this phase of the system, the student can return to Phase I to browse through and explore occupations, or he can proceed on to Phase III: Post-High School Educational Search.

Phase III: Post-High School Educational Search. For the student who plans to continue his formal education, the final phase of the system provides assistance in selecting an institution for his post-high school training. This part of the system can be used

school formal education, he would move to Phase II: Educational Orientation.

Phase II: Educational Orientation. This phase of the system appropriate for the student who plans to continue his formal education beyond high school. This section can be useful to students who have no vocational goals expressed in terms of tentative occupational choice, students who express their goals more adequately in terms of curricular preferences, or for students who are interested in the particular occupational implications of curricular choices.

The student becomes acquainted with areas of study found in instructional programs in junior colleges, technical schools, vocational schools, or four-year colleges or universities. (See Exhibit VI for Sample Chart of "Exploring Majors") from the areas of study available, the student names the ones which appeal to him. From this input, the system expands the areas which might be considered and relates these choices to their occupational implications. This is done by: (1) suggesting other areas of study which are compatible with the student's interests and with the areas he has already mentioned; and (2) informing the student of the occupations which are usually entered by individuals who have chosen the majors he has suggested.

Following his experience with this phase of the system, the student can return to Phase I to browse through and explore occupations, or he can proceed on to Phase III: Post-High School Educational Search.

Phase III: Post-High School Educational Search. For the student who plans to continue his formal education, the final phase of the system provides assistance in selecting an institution for his post-high school training. This part of the system can be used

Exhibit VI

EXPLORING MAJORS (Sample Chart)

When you are ready to explore major areas of study on ECES, you might consider starting with those majors that interest you the most, and that are offered at the level of schooling that you are planning to attend.

Your general learning ability predicted score suggests that if you can not raise your grades well above this score, you may have difficulty entering 4 year college programs that are highly selective.

This should not discourage you from planning on studying a particular major. You will find that many major are offered in shorter programs at 2 year colleges, which are easier to get into. After a successful completion of the 2 year program, you could transfer, and complete a 4 year program.

One search strategy you might consider would be to look at majors at levels 2 and 3.

Suggested Major Search Strategy

Based on your highest VPI scale score

VPI Scale - 4. Metal Trades

2 Year College Majors

Major Number	Major Name
42522	Body fender repair Technology
42576	Machine Shop Technology
42582	Metallurgical Technology
42583	Mechanical Technology
42602	Sheet Metal Technology
42609	Tool and Die Technology
42612	Welding Technology

Vocational or Technical School Majors

Major Number	Major Name
33728	Machine Shop Technology
33740	Too and Die Technology

Exhibit VI

GISD Skills Center Courses

Major Number	Major Name
04933	Machine Occupations I
04834	Machine Occupations II
04942	Trade & Industry co-op
04943	Welding

Based on your second highest VPI scale score

VPI Scale - 3. Drafting and Design

2. Year College Majors

Major Number	Major Name

both by students who express their goals in vocational terms and by those who have expressed them in educational terms. The search is designed to help the student develop a list of institutions which satisfy his curriculum objectives and his personal preferences. (Exhibit VII for Sample Chart of "College Search" information.)

After identifying schools which offer programs consistent with his curriculum objectives, the student may restrict the number of schools he wishes to consider by stating his preferences along these dimensions: (1) geographical location, (2) size of the school, (3) public or private, (4) all male, all female, or coeducational. The number of schools which meet the student's preferences depends on his tolerances in regard to these factors.

The student is then given a list of institutions which satisfy his preferences with respect to the four variables. For each institution on this list, the work sheet provides the following data: degree of selectivity of the college or school (this information can be related to the student's pre-college examinations and his grade-point average), availability of ROTC, residence facilities, religious affiliations, and living and tuition costs. In addition to institutions which meet the student's preferences, he can also receive the same information for any specific school which may be of interest to him. The list, with this information, is available for the student to use with his counselor and his parents in the search for post-high-school institutions.

Exhibit VII

COLLEGE SEARCH FOR MISS SLOAN DEBRA (Sample Chart)

Recently, you filled out a questionnaire in which you described what you wanted in the way of Junior Colleges. Here is a summary of your preferences.

1. Choice of Major X-Ray Technology

2. Desired Geographical Areas

Region 5

Ohio Michigan Indiana Illinois Wisconsin

3. Preferred Type of College - Co-ed

The accompanying list represents those junior college that meet your preferences. To assist you in evaluating these colleges, additional information has been added to the list.

We realize that you have personal and individual needs and values which will require still more information before you can arrive at your final junior college selection. When you require more information, we suggest that you consult the college catalogs and discuss the situation with your counselor and parents.

In order to familiarize you with the information on the accompanying list, each column is explained below.

1. The name and address of the college
2. Top line - the type of college e.g. co-ed, all male, or all female
3. The approximate tuition cost per school year
4. The approximate yearly room and board costs
5. The number of male and female students currently enrolled
6. Any special aspects about the college

(Your list of colleges begins on the next page.)

Exhibit VII

College Name and Address			Type	Tuition	Room+Board	No. of Students		Comments
Ferris State College Big Rapids	Mi	49307	Co-ed State	$0375	$1017	04803 03635	Men Women	
Kellogg Community College Battle Creek	Mi	49016	Co-ed City	$0536	$0700	01806 01176	Men Women	No forms
Port Huron Hospital Port Huron	Mi		Co-ed City	$	$		Men Women	
McLaren General Hospital Flint	Mi	48502	Co-ed Independent	$	$		Men Women	
St. Josephs Hospital Mount Clemens	Mi	48043	Co-ed Catholic	$	$		Men Women	No forms
Hackley Hospital Muskegon	Mi	49441	Co-ed Independent	$0085	$	00007 00156	Men Women	No forms
St. Joseph Mercy Hospital Pontiac	Mi	48053	Co-ed Catholic	$	$		Men Women	No forms

Summary

In summary, this chapter has presented a brief description of the ECES system as used in the Genessee Intermediate School District with the underlying rationale and objectives which influenced its design. It is important to keep in mind that the basic concepts used were those of vocational development and the basic intent is to facilitate vocational development through guided exploration of vocationally relevant characteristics of the individual and of the educational and occupational world within which the individual develops his career.

APPENDIX B

A Student Reaction Form for Traditional Counseling (T.C.)

Means, Standard Deviations and Reliability Coefficients of Traditional Instrument as Related to Individuals Hypotheses

Number_____ Date_____

ECES - TC

STUDENT REACTION FORM - TC

Directions: I would like to discover the extent to which you are familiar with the guidance services offered in your school in helping you select the career of your choice. I would like to know how you feel about the Guidance services, your school district's personnel will be better able to serve you.

Will you please answer the following questions as frankly and as honestly as you can. YOUR NAME IS NOT REQUIRED ON THIS QUESTIONNAIRE.

Name of School:_____

1. How many years have you attended this school? Circle one.

1	5	
2	6	
		years
3	7	
4	8	

2. What is your grade level? Circle one.

9th. 10th. 11th. grade

3. Sex:

Male_____

Female_____

Number_____

4. During and since the 11th grade, approximately how often have you gone to your counselor when you were trying to make a vocational choice?

once a week _____

once a month _____

once every two months _____

once every four months _____

once every six months _____

once a year _____

5. What is your overall grade point average since 9th grade? Check one.

4.0 - 4.5 _____

3.6 - 3.9 _____

3.0 - 3.5 _____

2.6 - 2.9 _____

2.0 - 2.5 _____

1.6 - 1.9 _____

1.0 - 1.5 _____

Below 1.0 _____

Please continue.....

Number_____

6. What kind of occupation do you plan to enter? Please write it in the line below?

_____

_____

Undecided

7. How many times have you changed your career choice since the 9th grade?

0 times _____

once _____

twice _____

three or more times _____

8. When you were in the 9th grade, your career choice was

_____

9. If you have changed your mind once or more since that time list in order what those change(s) in choice has(have) been. My

first choice was _____

second choice was _____

third choice was _____

fourth choice was _____

10. With respect to the career you have presently chosen to pursue, which one of the following statements best describe your feelings about it?

It isn't what I really want _____

It has more of what I don't, then what I do want _____

It has more of what I want then what I don't want _____

It is exactly what I want _____

Please continue.....

Number_____

11. In the next ten years I would like to be:

doing a different kind of work from which I have chosen _____

searching for something completely different _____

searching for something similar _____

be/or working at being the best of what I have chosen _____

12. This past year, during my spare time I preferred to:

read for pleasure _____

discuss my future education &/or vocational plans with the Counselor if at all possible _____

play with my friends _____

do nothing _____

13. If you immediately wanted to read more about working conditions and chances for employment in your chosen career field; and the closest source was 10 miles away, which of the following would you most likely do? (choose only one)

cut a class to find the information I need _____

ask someone I know who has an idea of the answer _____

probably try to use my imagination _____

probably do without the information _____

Please continue.....

Number_____

14. How do you feel when you hear someone criticizing your counselor by comparing it unfavorably with ECES?

mostly agree with them _____

doesn't bother me _____

I get a lettle mad _____

I get quite mad _____

I never hear anyone comparing them _____

15. If I were again in the ninth grade I would prefer to make a career decision with the help of:

ECES alone _____

ECES and the counselor _____

my counselor alone _____

mostly ECES _____

mostly my counselor _____

neither the counselor nor ECES _____

16. If, until you graduate, you were to choose a single source to help you in your career planning, which of the following would you choose?

the counselor _____

ECES _____

go to the library _____

other... What is it? _____

Please continue.....

Number_____

17. As compared with ECES, the Counselor usually reminds me most of:

trying to think through a plan for myself _____

discussing my plans with a good friend _____

when my parents try to discourage me _____

having to defend myself about everything I say _____

18. In the career you have chosen, if machines were invented and the particular job was eliminated, which one of the following statements best describes the position in which you are likely to find yourself:

I know of a closely related job I could enter without a great deal of additional training _____

I would have to find a new career _____

I wouldn't know what to do _____

19. Imagine for a mement that you are unable to find the job you want after your training. You can possibly think of others in the same field which require little or no additional training which you'd try. How many such jobs can you think of?

2 or less _____

3 - 4 _____

5 - 6 _____

More than 6 _____

20. In which of the following high school programs are you currently enrolled?

Vocational program _____

College preparatory program _____

General-academic program _____

Please continue.....

Number_____

21. At which grade did you decide on the career you currently wish to pursue?

7th grade _____

8th grade _____

9th grade _____

10th grade _____

11th grade _____

22. With respect to the career you have chosen, which one of the following statements best describes the level of success you feel you will achieve? I feel I will be:

very successful _____

moderately successful _____

moderately unsuccessful _____

very unsuccessful _____

23. The single most positive influential factor in my final decision concerning a career was:

the computer (ECES) _____

my parents _____

my teachers _____

my high school counselor _____

my friends _____

other---what (who) was that _____

Please continue.....

Number_____

24. Indicate by placing an X under the appropriate column the degree of success you feel your counselor has in helping you in the following areas:

	Very Good	Fairly Good	Fairly Poor	Very Poor	Does not apply
a. Educational planning					
b. Occupational planning					

25. Indicate by placing an X under the appropriate column the degree of success you feel your counselor has helped become knowledgeable concerning:

	Very Good	Fairly Good	Fairly Poor	Very Poor	Does not apply
a. What courses are required in the major					
b. The subject matter covered by each course in the major					
c. The electives suggested for a particular major					

Please continue.....

Number_____

26. Indicate by placing an X under the appropriate column the degree of success you feel your counselor has in explaining each of the following:

	Very Good	Fairly Good	Fairly Poor	Very Poor	Does not apply
a. The activities performed by people in the occupation					
b. The tools, equipment or resources used by people in the occupation					
c. The qualifications needed by people in the occupation					
d. The education and training needed in the occupation					
e. The chances of employment in the occupation					
f. The salary you could expect in the occupation					
g. Chances of advancement in the occupation					

27. What is your overall reaction to the counseling you receive?

am very satisfied _____

am somewhat satisfied _____

am somewhat dissatisfied _____

am very dissatisfied _____

Means, Standard Deviations and
Reliability Coefficients of Traditional Instrument as Related
to Individual Hypotheses

Hypotheses and Related Items	Mean	Standard Deviation	Item-Test Reliability
H_1: FREQUENCY OF CHANGES IN CAREER CHOICE			
1. How many times have you changed your career choice since the 9th grade?	2.96	1.05	0.029
2. At which grade did you decide on the career you currently wish to pursue?	3.42	1.67	0.222
H_2: CERTAINTY CONCERNING CAREER CHOICE			
1. With respect to the career you have presently chosen to pursue, which one of the following statements best describes your feelings about it?	2.99	1.25	0.487
2. In the next ten years, I would like to be:	3.48	1.08	0.383
3. With respect to the career you have chosen, which one of the following statements best describes the level of success you feel you will achieve? (for discussion only)	3.30	0.82	0.237
H_3: INSTANCES OF MOVEMENT			
1. If you have changed your mind once or more since the ninth grade, list in order what these change(s) in choice has (have) been	0.99	1.08	0.122
H_4: FEELING OF PERSONAL INVOLVEMENT IN CHOICE			
1. This past year, during my spare time I preferred to:	2.21	1.34	0.209
2. If you immediately wanted to read more about working conditions and chances for employment in your chosen career field; and the closest source was ten miles away, which of the following would you most likely do?	2.87	0.80	0.127

3. How do you feel when you hear someone criticizing your counselor (ECES) by comparing it unfavorably with ECES (the counselor)	2.77	0.80	0.336
H_5: PREFERENCE FOR METHOD OF COUNSELING			
1. If I were again in the ninth grade, I would prefer to make a career decision with the help of	3.11	1.64	0.84
2. If, until you graduate, you were to choose a single source to help you in your career planning, which of the following would you choose?	2.36	1.29	0.221
3. As compared with ECES (counselor), the Counselor (ECES) usually reminds me most of	2.94	1.31	0.352
4. The single most positive influential factor in my final decision concerning a career was (for discussion only)	3.99	2.06	0.284
H_6: FEELING OF FLEXIBILITY TOWARD JOB CHOICE			
1. In the career you have chosen, if machines were invented and the particular job was eliminated, which one of the following statements best describes the position in which you are likely to find yourself?	2.23	0.94	0.183
2. Imagine for a moment that you are unable to find the job you want after your training. You can possibly think of others in the same field which requires little or no additional training which you'd try. How many such jobs can you think of?	1.67	1.00	0.206
QUESTIONS FOR DISCUSSION PURPOSES TO SHOW EFFECT OF (a) School (b) Racial Composition of School (c) Program in which students were enrolled (college preparatory, academic, vocational)			
1. Indicate by paicing an "x" in the appropriate column the degree of success you feel your counselor (ECES) has in helping you in the following areas:			
a) Educational Planning	3.46	1.66	0.640
b) Occupational Planning	2.91	1.62	0.609

2. Indicate by placing an "x" in the appropriate column the degree of success you feel your counselor (ECES) has in helping you become knowledgeable concerning:			
a) What courses are required in the major	3.66	1.65	0.720
b) The subject matter covered by each course in the major	3.14	1.73	0.706
c) The electives suggested for a particular major	3.25	1.73	0.693
3. Indicate by placing an "x" under the appropriate column the degree of success you feel your counselor has in explaining each of the following:			
a) The activities performed by people in the occupation	2.85	1.71	0.749
b) The tools, equipment or resources used by people in the occupation	2.58	1.73	0.801
c) The qualifications needed by people in the occupation	2.86	1.85	0.797
d) The education and training needed in the occupation	2.90	1.83	0.805
e) The chances of employment in the occupation	2.68	1.81	0.813
f) The salary you could expect in the occupation	2.48	1.79	0.778
g) Chances of advancement in the occupation	2.59	1.76	0.780
4. What is your overall reaction to the counseling you receive?	2.65	1.26	0.597

Total

Mean= 84.62
Stated
Deviation= 19.38
Kuder-Richardson Reliability (Formula 8) = .91

APPENDIX C

A Student Reaction Form for Educational Career Exploration Systems (ECES)

Means, Standard Deviations and Reliability Coefficients of ECES Instrument as Related to Individual Hypotheses Tested

Number _____ Date _____

ECES - TC

STUDENT REACTION FORM - ECES

Directions: I would like to discover the extent to which you are familiar with the guidance services offered in your school in helping you select the career of your choice. I would like to know how beneficial these services have been to you. By knowing how you feel about the Guidance services, your school district's personnel will be better able to serve you.

Will you please answer the folliwng questions as frankly and as honestly as you can. YOUR NAME IS NOT REQUIRED ON THIS QUESTIONNAIRE.

Name of School: _____

1. How many years have you attended this school. Circle one.

1	5	
2	6	
3	7	years
4	8	

2. What is your grade level? Circle one.

9th 10th 11th grade

3. Sex: _____Male

_____Female

Please continue.....

Number_____

4. During and since the 10th grade, approximately how often have you used the computer in trying to make a vocational choice?

once a week _____

once a month_____

once every two months_____

once every four months _____

once every six months_____

once a year_____

5. What is your overall grade point average since 9th grade. Check one:

4.0 - 4.5 _____

3.6 - 3.9 _____

3.0 - 3.5 _____

2.6 - 2.9 _____

2.0 - 2.5 _____

1.6 - 1.9 _____

1.0 - 1.5 _____

Below 1.0 _____

Please continue.....

Number_____

6. What kind of occupation do you plan to enter? Please write it in the line below.

_____

Undecided_____

7. How many times have you changed your career choice since the 9th grade?

0 times_____

once_____

twice_____

three or more times_____

8. When you were in the 9th grade your career choice was?

_____

9. If you have changed your mind once or more since that time list in order what that (those) change (s) in choice has (have) been. My

first choice was_____

second choice was_____

third choice was_____

fourth choice was_____

10. With reapect ot the career you have presently chosen to pursue, which one of the following statements best describes your feelings about it?

It isn't what I really want_____

It has more of what I don't, than
what I do want _____

It has more of what I want than
what I don't want_____

It is exactly what I want_____

Please continue.....

Number_____

11. In the next ten years I would like to be:

doing a different kind of work from which I have chosen_____

searching for something completely different _____

searching for something similar_____

be/or working at being the best of what I have chosen_____

12. This past year, during my spare time I preferred to:

read for pleasure_____

visit ECES to explore my future educational and/or vocational plans if at all possible_____

play with my friends_____

do nothing_____

13. If you immediately wanted to read more about working conditions and chances for employment in your chosen career field; and the closest source was 10 miles away, which of the following would you most likely do?

cut a class to find the information I need_____

ask someone I know who has an idea of the answer_____

probably try to use my imagination_____

probably do without the information_____

14. How do you feel when you hear someone critizing ECES and comparing it unfavorable with the counselor?

mostly agree with them_____

doesn't bother me_____

Please continue.....

Number_____

cont. # 14

I get a little mad_____

I get quite mad_____

I never hear anyone comparing them_____

15. If I were again in the ninth grade I would prefer to make a career decision with the help of

ECES alone_____

ECES and the counselor_____

my counselor alone_____

mostly ECES_____

mostly my counselor_____

neither the counselor nor ECES_____

16. If, until you graduate, you were to choose a single source to help you in your career planning, which of the following would you choose?

the counselor_____

ECES_____

go to the library_____

other-What is it?_____

17, As compared with the counselor, ECES usually reminds me most of:

trying to think through a plan for myself_____

discussing my plans with a good friend_____

when my parents try to discourage me_____

having to defend myself about everthing I say_____

Please continue.....

Number_____

18. In the career you have chosen, if machines were invented and the particular job was eliminated, which one of the following statements best describes the position in which you are likely to find yourself?

I know of a closely related job I could enter without a great deal of additional training_____

I would have to find a new career_____

I wouldn't know what to do_____

19. Imagine for a moment that you are unable to find the job you want after your training. You can possibly think of others in the same field which require little or no additional training which you'd try. How many such jobs can you think of?

2 or less_____

3 - 4 _____

5 - 6 _____

More than 6 _____

20. In which of the following high school programs are you currently enrolled?

Vocational program_____

College preparatory program_____

General-academic program_____

21. At which grade did you decide on the career you currently wish to pursue?

7th grade _____

8th grade_____

9th grade_____

10th grade_____

11th grade_____

Please continue.....

Number_____

22. With respect to the career you have chosen, which of the following statements best describes the level of success you feel you will achieve? I feel I will be?

very successful_____

moderately successful_____

moderately unsuccessful_____

very unsuccessful_____

23. The single most positive influential factor in my final decision concerning a career was:

the computer (ECES)_____

my parents_____

my teachers_____

my high school counselor_____

my friends_____

other-What/Who was it_____

24. Indicate by placing an X under the appropriate column the degree of success you feel ECES has in helping you in the following areas:

	Very good	Fairly good	Fairly poor	Very poor	Does not Apply
a. educational planning					
b. occupational planning					

Please Continue.....

Number _____

25. Indicate by placing an X under the appropriate column the degree of success you feel ECES has in helping you become more knowledgable concerning:

	Very good	Fairly good	Fairly poor	Very poor	Does not apply
a. What courses are required in the major					
b. The subject matter covered by each course in the major					
c. The electives suggested for a particular major					

26. Indicate by placing an X under the appropriate column the degree of success you feel ECES has in explaining each of the following:

	Very good	Fairly good	Fairly poor	Very poor	Does not apply
a. The activities performed by people in the occupation					
b. The tools, equipment or resources used by people in the occupation					
c. The qualifications needed by people in the occupation					
d. The education and training needed in the occupation					
e. The chances of employment in the occupation					
f. The salary you could expect in the occupation					
g. Chances of advancement in the occupation					

Number_____

27. What is your overall reaction to the ECES system?

I am very satisfied_____

I am somewhat satisfied_____

I am somewhat dissatisfied_____

I am very dissatisfied_____

Means, Standard Deviations and
Reliability Coefficients of ECES Instrument as Related
to Individual Hypotheses Tested

Hypotheses and Related Items	Mean	Standard Deviation	Test-Retest Reliability
H_1: FREQUENCY OF CHANGES IN CAREER CHOICE			
1. How many times have you changed your career choice since the 9th grade?	2.76	1.20	0.158*
2 At which grade did you decide on the career you currently wish to pursue?	3.37	1.42	0.362
H_2: CERTAINTY CONCERNING CAREER CHOICE			
1. With respect to the career you have presently chosen to pursue, which one of the following statements best describes your feelings about it?	2.89	1.26	0.327
2 In the next ten years, I would like to be:	3.47	1.09	0.306
3 With respect to the career you have chosen, which one of the following statements best describes the level of success you feel you will achieve? (for discussion only)	3.39	0.79	0.229
H_3: INSTANCES OF MOVEMENT			
1. If you have changed your mind once or more since the ninth grade, list in order what these change(s) in choice has (have) been	1.05	1.12	0.020
H_4: FEELING OF PERSONAL INVOLVEMENT IN CHOICE			
1. This past year, during my spare time I preferred to:	2.18	1.32	0.315
2. If you immediately wanted to read more about working conditions and chances for employment in your chosen career field; and the closest source was ten miles away, which of the following would you most likely do?	2.85	0.81	0.250

4. How do you feel when your boss sometimes criticizing your counselor (ECES) by comparing it unfavorably with Eff (the counselor)	[illegible]	[illegible]	0.41[illegible]
H_5 PREFERENCE FOR METHOD OF COUNSELING			
1. If I were again in the ninth grade, I would prefer to make a career decision with the help of	3.13	1.42	0.477
2. If, until [illegible] you were to choose a single source to help you in your career planning, which of the following would you choose	2.27	1.[illegible]	0.[illegible]
3. As compared with [illegible] (Counselor), the Counselor (ECES) usually rendered me most of	3.05	1.[illegible]	0.[illegible]
4. The single most positive influential factor in my final decision concerning a career was (for discussion only)	3.66	2.17	[illegible]
H_6: FEELING OF FLEXIBILITY TOWARD JOB CHOICE			
1. In the career you have chosen, if machines were invented and the particular job was eliminated, which one of the following statements best describes the position in which you are likely to find yourself?	2.13	0.99	0.147
2. Imagine for a moment that you are unable to find the job you want after your training. You can possibly think of others in the same field which requires little or no additional training which you'd try. How many such jobs can you think of?	**1.65**	0.92	0.1[illegible]
QUESTIONS FOR DISCUSSION PURPOSES TO SHOW EFFECT OF (a) School (b) Racial Composition of School (c) Program in which students were enrolled (college preparatory, academic, vocational)			
1. Indicate by placing an 'X' in the appropriate column the degree of success you feel your counselor (ECES) has in helping you in the following areas			
a) Educational Planning	3.50	1.[illegible]	0.593
b) Occupational Planning	3.38	1.[illegible]	0.585

2. Indicate by placing an "x" in the appropriate column the degree of success you feel your counselor (ECES) has in helping you become knowledgeable concerning.			
a) What courses are required in the major	3.71	1.43	0.715
b) The subject matter covered by each course in the major	3.40	1.47	0.733
c) The electives suggested for a particular major	3.40	1.50	0.695
3. Indicate by placing an "x" under the appropriate column the degree of success you feel your counselor has in explaining each of the following:			
a) The activities performed by people in the occupation	3.76	1.39	0.739
b) The tools, equipment or resources used by people in the occupation	3.55	1.46	0.779
c) The qualifications needed by people in the occupation	3.86	1.43	0.781
d) The education and training needed in the occupation	3.85	1.51	0.772
e) The chances of employment in the occupation	3.38	1.53	0.756
f) The salary you could expect in the occupation	3.69	1.47	0.756
g) Chances of advancement in the occupation	3.39	1.54	0.718
4. What is your overall reaction to the counseling you receive?	2.73	1.10	0.712

Total

Mean= 84.62
Stated
Deviation= 19.38
Kuder-Richardson Reliability (Formula 8) = .91

APPENDIX D

Pre-Study Administrative Supplements

1. Letter to Director of Vocational Education Genessee Intermediate School District

2. Director's Reply

3. Letter to State Director of Vocational Education

4. State Director's Reply

MICHIGAN STATE UNIVERSITY EAST LANSING • MICHIGAN 48823

COLLEGE OF EDUCATION • ERICKSON HALL

203 West Owen Graduate Center
Michigan State University
East Lansing, Michigan 48823

March 28, 1972

Mr. Alva Mallory, Director
Vocational Education
Genessee Intermediate School District
2413 West Maple Avenue
Flint, Michigan 48507

Dear Mr. Mallory,

This is to confirm our recent conversation concerning my interest in conducting an evaluative study of the ECES as it relates particularly to 'disadvantaged' students in the Genessee Intermediate School District.

Since no students using the Program would have as yet graduated when the study is conducted, I have had to revise the questions to some degree. I am enclosing a copy of this revision. You will note that the focus of interest still remains the same, i.e. choice stability and attitude toward the System.

Your comments will be appreciated. For procedural purposes, please recall that I will also need your written approval for conduction of the investigation.

I look forward to working with you in our joint interest in values and effects of this new effort.

Yours very truly,

Elridge M. James

Elridge M. James

Genesee Intermediate School District

2413 W. MAPLE AVENUE TELEPHONE 232-9161 FLINT, MICHIGAN 48507

April 13, 1972

Mr. Elridge M. James
203 West Owen Graduate Center
Michigan State University
East Lansing, Michigan 48823

Dear Mr. James:

May I first of all express my appreciation for your interest in conducting an evaluation study of the ECES program as it relates to disadvantaged students. Please consider this as a letter of confirmation for you to conduct your study. The only request that I have is that all of your contacts with students and educators be made through the Genesee Intermediate School District office.

It was a sincere pleasure meeting with you and I want you to know that I was very much impressed with you as an individual as well as your ideas and objectives as they relate to career development. I am also impressed with the possibility of your assignment here as a doctoral intern.

Areas of responsibility that you might like to consider are:

1. Implementation and inservice training in relationship to career development.

2. K-12 career education curriculum development.

3. Articulation of World of Work programs at the elementary, junior high, and high school level.

4. Planning and developing a master plan for career education (K-14).

5. Total placement program to serve all students graduating from high school and college programs.

Please keep me informed of your future intentions. I shall look forward to working with you in the future.

Yours very truly,

Al Mallory, Director
Vocational Education

AM:dp

STATE OF MICHIGAN

DEPARTMENT OF EDUCATION

Lansing, Michigan 48902

JOHN W. PORTER
Superintendent of
Public Instruction

May 4, 1972

Mr. Eldridge M. James
West 203 Owen Graduate Center
Michigan State University
East Lansing, Michigan 48823

Dear Mr. James:

I am pleased that you are interested in performing a study of some effects of the Educational Career Exploration System under trial by the Genesee Intermediate School District in the Flint public schools. You have our permission to conduct the study for your dissertation entitled "Traditional vs. Computer-Based Vocational Counseling: Implications for Disadvantaged Youth."

This permission is granted subject to two stipulations:

1. That the study will be done at no cost to the Department; and
2. That you have secured the concurrence of the Genesee Intermediate School District and the Flint schools to be involved.

We would appreciate receiving a copy of your report when it is completed.

Best wishes for success.

Sincerely,

Jack Michie
State Director
Vocational Education and
Career Development Service

JM:gc
cc: E. I. Davis, Supt., GISD

MICHIGAN STATE UNIVERSITY EAST LANSING • MICHIGAN 48823

COLLEGE OF EDUCATION • ERICKSON HALL

203 West Owen Graduate Center
Michigan State University
East Lansing, Michigan 48823

March 28, 1972

Mr. James Mahrt, State Director
The Vocational & Career Development Services
Michigan Department of Education
Lansing, Michigan

Dear Mr. Mahrt,

As a candidate for the Doctoral degree in Vocational-Technical Education at Michigan State University, I have been referred to you by Mr. Alva Mallory for your permission to conduct a study in the Genessee School District.

The study is concerned with the recently implemented ECES (Educational Career Exploration System) specifically as it relates to 'disadvantaged' students.

Attached is a copy of an abstract of the intended survey and a list of specific areas I wish to explore. You will note that the primary focus is with regard to the students' attitude toward the System and secondly, the satisfaction with, and stability of the choices they have made in this manner.

I shall be pleased to meet and discuss the matter with you further. I feel that such a project will be of mutual benefit to all of us in our efforts to improve the educational advantages available to our students.

Yours very truly,

Elridge M. James

APPENDIX E

Pilot Test Supplement

1. Instructions
2. Sample Response Sheet

No._____ Date_____

ECES - TC

SECOND REVISED STUDENT REACTION FORM - FOR PILOT TEST

DIRECTIONS: I would like to discover the extent to which you are are familiar with the guidance services offered in your school in helping you select the career of your choice. I would like to know how beneficial these services have been to you. By knowing how you feel about the Guidance services, your school district's personnel will be better able to serve you. Will you please answer the following questions as frankly and as honestly as you can. YOUR NAME IS NOT REQUIRED ON THIS QUESTIONNAIRE.

A. Name of School:

How many years have you attended this school? Circle one

1 2 3 4 5 6 7 8 years

What is your grade level Circle one: 9 10 11 12

Sex: _____Male _____Female

What is your current course of study?

_____Vocational program

_____College preparatory program

_____General-academic program

What kind of occupation do you plan to enter?

First choice_____

Second choice_____

Third choice_____

Undecided _____

During and since the 10th grade I have used the computer in trying to make a vocational choice approximately:

	_____	once a week
Frequent	_____	once a month
	_____	once every two months
	_____	once every four months
Infrequent	_____	once every six months
	_____	once a year

What is your overall grade point average since 9th grade: Check one

_____ 3.0-4.0 _____2.0-2.9 _____1.0-1.9

B. I decided on what career I wished to pursue when I was in the

_____ 8th grade _____10th grade

_____ 9th grade _____11th grade

Since 9th grade I have changed my career choice

_____ 0 times _____twice

_____ once _____three or more times

C. If you have changed careers since the 9th grade, answer the following:

My first choice was _____

My second choice was_____

My third choice was _____

My fourth choice was_____

I have never changed_____

D. During the past year, during my spare time I preferred to:

_____ read for pleasure

_____ visit the ECES if at all possible

_____ play with my friends

_____ do nothing

If you immediately wanted to read more about working conditions and chances for employment in your chosen career field; and the closest source was 10 miles away, which of the following would you most likely do:

_____ cut a class to go

_____ ask someone I know who has a vague idea of the answer

_____ probably try to use my imagination

_____ probably do without the information

How do you feel when you hear someone criticizing the Counselor and comparing him unfavorably with the Computer?

_____ mostly agree with them

_____ doesn't bother me

_____ I get a little mad

_____ I get quite mad

_____ never hear anyone compare them

In general, how often do you tell someone outside of school (family or close friend) about things concerning your occupational choice?

_____ once a week

_____ several times a month

_____ once every few months

_____ once a year

_____ no immediate family or friend

D. With respect to the career I have chosen to pursue I feel:

_____ very certain it is what I want

_____ moderately certain

_____ quite uncertain

_____ very uncertain

I usually feel that the career I have chosen:

_____ isn't what I really want

_____ has more of what I don't want than what I want

_____ has more of what I want than don't want

_____ is exactly what I want

With respect to the career I have chosen, I feel that I will be:

_____ very successful

_____ moderately successful

_____ a little unsuccessful

_____ very unsuccessful

In the next ten years I'd like to be:

_____ doing a different kind of work from what I have chosen

_____ searching for something completely different

_____ searching for something similar

_____ be/or working at being the best of what I have chosen

E. If I were unable to find the job I want after my training I think I could easily think of _____ in the same field which require little or no additional training which I'd try:

I can think of

_____ 1 other

_____ 2 other

_____ 3 other

_____ 4 or more other

In the career I have chosen, if machines were invented and the particular job was eliminated, I think I would:

_____ know of a closely related job I could do

_____ have to find a new career

_____ wouldn't know what to do

F. The most positive influential factor in my final decision concerning a career was:

_____ the counselor

_____ the computer

_____ my parents

_____ my teachers

_____ a book I read

_____ other

If I were again in the 9th grade I would prefer to make a career decision using:

_____ the computer along

_____ the computer and the counselor

_____ the counselor alone

_____ mostly the computer

_____ mostly the counselor

_____ neither the counselor nor the computer

If, until you graduate, you were to choose a single source to help you in your career planning, which of the following would you choose?

_____ the counselor

_____ the computer

_____ go to the library

_____ other What is it? _____

As compared with the computer, counselors usually reminds you most of:

_____ trying to think through a plan for myself

_____ discussing my plans with a good friend

_____ when my parents try to discourage me

_____ having to defend myself about everything I say

G. How good a job does the counselor do in helping you in the area of:

	Very good	Fairly good	Fairly poor	Very poor	Does not apply
a. educational planning					
b. occupational planning					

How good a job does the Counselor do in explaining

	Very good	Fairly good	Fairly poor	Very poor	Does not
a. What courses are required in the major					
b. The subject matter covered by each course in the major					
c. The electives suggested for a particular major?					

How good a job does your Counselor do in explaining each of the following?

	Very good	Fairly good	Fairly poor	Very poor	Does not apply
a. The activities performed by people in the occupation					
b. The tools, equipment or resources used by people in the occupation					
c. The qualifications needed by people in the occupation					
d. The education and training needed in the occupation					
e. The chances of employment in the occupation					
f. The salary you could expect in the occupation					
g. The chances of advancement in the occupation					

What is your overall reaction to the Counseling Program?

_____ I like it very much

_____ I like it somewhat

_____ I dislike it somewhat

_____ I dislike it very much

APPENDIX F

Combined Means, Standard Deviations of T.C. and ECES

Means, Standard Deviations and
Reliability Coefficients of Items as they
Relate to Individual Hypotheses Tested
for Both Methods (ECES and Traditional Counseling)

Hypotheses and Related Items	Mean	Standard Deviation	Item-Test Reliability
H_1: FREQUENCY OF CHANGES IN CAREER CHOICE			
1. How many times have you changed your career choice since the 9th grade?	2.85	1.14	.08
2. At which grade did you decide on the career you currently wish to pursue?	3.39	1.54	.26
H_2: CERTAINTY CONCERNING CAREER CHOICE			
1. With respect to the career you have presently chosen to pursue, which one of the following statements best describes your feelings about it?	2.94	1.26	.40
2. In the next ten years, I would like to be:	3.48	1.08	.34
3. With respect to the career you have chosen, which one of the following statements best describes the level of success you feel you will achieve? (for discussion only)	3.35	.81	.24
H_3: INSTANCES OF MOVEMENT			
1. If you have changed your mind once or more since the ninth grade, list in order what these change(s) in choice has (have) been	1.02	1.10	.07
H_4: FEELING OF PERSONAL INVOLVEMENT IN CHOICE			
1. This past year, during my spare time I preferred to:	2.19	1.33	.26
2. If you immediately wanted to read more about working conditions and chances for employment in your chosen career field; and the closest source was ten miles away, which of the following would you most likely do?	2.86	.80	.18

2. Indicate by placing an "x" in the appropriate column the degree of success you feel your counselor (ECES) has in helping you become knowledgeable concerning:			
a) What courses are required in the major	3.69	1.53	.71
b) The subject matter covered by each course in the major	3.28	1.60	.72
c) The electives suggested for a particular major	3.33	1.61	.69
3. Indicate by placing an "x" under the appropriate column the degree of success you feel your counselor has in explaining each of the following:			
a) The activities performed by people in the occupation	3.34	1.61	.77
b) The tools, equipment or resources used by people in the occupation	3.11	1.66	.79
c) The qualifications needed by people in the occupation	3.40	1.71	.79
d) The education and training needed in the occupation	3.41	1.73	.80
e) The chances of employment in the occupation	3.06	1.70	.78
f) The salary you could expect in the occupation	3.14	1.73	.77
g) Chances of advancement in the occupation	3.03	1.70	.76
4. What is your overall reaction to the counseling you receive?	2.69	1.18	65

Total

Mean= 84.62
Stated
Deviation= 19.38
Kuder-Richardson Reliability (Formula 8) = .91

3. How do you feel when you hear someone criticizing your counselor (ECES) by comparing it unfavorably with ECES (the counselor)	2.65	.8[illegible]	.29
H_5: PREFERENCE FOR METHOD OF COUNSELING			
1. If I were again in the ninth grade, I would prefer to make a career decision with the help of	3.12	1.53	.27
2. If, until you graduate, you were to choose a <u>single</u> source to help you in your career planning, which of the following would you choose?	2.27	1.27	.22
3. As compared with ECES (counselor), the Counselor (ECES) usually reminds me most of	3.00	1.29	.40
4. The single most positive influential factor in my final decision concerning a career was (for discussion only)	3.81	2.13	11
H_6: FEELING OF FLEXIBILITY TOWARD JOB CHOICE			
1. In the career you have chosen, if machines were invented and the particular job was eliminated, which one of the following statements best describes the position in which you are likely to find yourself?	2.18	.97	.15
2. Imagine for a moment that you are unable to find the job you want after your training. You can possibly think of others in the <u>same field</u> which requires little or no additional training which you'd try. How many such jobs can you think of?	1.66	.96	.17
QUESTIONS FOR DISCUSSION PURPOSES TO SHOW EFFECT OF (a) School (b) Racial Composition of School (c) Program in which students were enrolled (college preparatory, acedemic, vocational)			
1. Indicate by palcing an "x" in the appropriate column the degree of success you feel your counselor (ECES) has in helping you in the following areas:			
a) Educational Planning	3.48	1.48	.61
b) Occupational Planning	3.16	1.50	.61